

## **A1 Administrative matters related to the research**

Following the publication in the Official Journal of European Communities C series n° 170/20 June 14 1996 of the “Notice of public contract - Open procedure” for a research activity aimed at “providing the scientific basis for harmonised definition of models for determining the actions of snow applied to the structural parts of construction works”, the present research group co-ordinated by Prof. Sanpaolesi - University of Pisa (IT), on July 1996 presented a tender referring to the technical specification document “General invitation to tender n° 96/C 170/13”.

The research group comprises the following institutions:

1. BUILDING RESEARCH ESTABLISHMENT LTD, CONSTRUCTION DIVISION (UNITED KINGDOM)
2. CSTB, CENTRE DE RECHERCHE DE NANTES (FRANCE)
3. ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, (SWITZERLAND)
4. ISMES STRUCTURE ENGINEERING DEPARTMENT (ITALY)
5. JOINT RESEARCH CENTRE, ISIS (EU)
6. SINTEF, CIVIL AND ENVIRONMENTAL ENGINEERING (NORWAY)
7. UNIVERSITY OF LEIPZIG, INSTITUTE OF CONCRETE DESIGN (GERMANY)
8. UNIVERSITY OF PISA, DEPARTMENT OF STRUCTURAL ENGINEERING (ITALY)

In the tender the research work was divided into two consecutive phases. Each phase deals with two specific items and technical co-ordination of the research activity for each item is carried out by a member of the research group:

### **Phase I**

task Ia: “Development of models for the determination of snow loads on the ground” Co-ordinator Dr. Gränzer (University of Leipzig - DE);

task Ib: “Development of models for exceptional snow loads” Co-ordinator Mr. Sims (BRE-UK);

### **Phase II**

task IIc: “Definition of criteria to be adopted for serviceability loads” Co-ordinator Prof. Holand (SINTEF - N);

task IId: “Analytical study for the definition of shape coefficients” Co-ordinator Mr. Stiefel (EPFL - CH);

The contract (banco n° 500269) between the European Commission and the research group was signed on Dec. 16 1996. Prof. Sanpaolesi signed the contract as Co-ordinator of the group, on behalf of all participant. This contract covers only phase I of the research.

During the reference period, fixed as 14 months after the signature, the group has strictly followed the administrative, formal and technical indications enclosed in the contract and in its annexes. Technical specifications were given in Annexe III of the contract.

The research activity started on Feb. 1997, the interim report and final report were required to be sent to the Commission within 9 months and 12 months respectively after the signature of the contract. As a result of a delay in starting the works the Co-ordinator, on behalf of the Partners, asked DGIII for an extension of three months to the contract duration. This was approved in the

letter to the Co-ordinator from the Commission dated 20 June 1997 and article two of the contract was amended as follows:

"La tâche confiée au contractant devra être accomplie au plus tard 17 mois à compter de la date de signature du contrat (phase I)".

Therefore the timetable for the submission of official deliverables was as follows:

- interim report 16th December 1997;
- draft final report 16th March 1998.

The interim report was submitted to the Commission on December 11 1997, according to the revised timetable.

Now the final report is being submitted to the Commission in accordance to the timetable. Only in the case of comments coming from the Commission, within one month after the submission, will the group have one further month in order to revise the document taking into account the Commission's observations.

To date seven meetings among Partners have taken place,

- in Brussels on 12<sup>th</sup> February 1997;
- in Zurich on 29<sup>th</sup> April 1997;
- in Ispra on 3<sup>rd</sup>/4<sup>th</sup> July 1997 (with the presence of National Technical Contacts);
- in Pisa on 19<sup>th</sup>/20<sup>th</sup> September 1997 (with the presence of Mr. Jean);
- in Frankfurt on 11<sup>th</sup> 12<sup>th</sup> December 1997;
- in Brussels on 29<sup>th</sup> January 1998;
- in Oslo on 3<sup>rd</sup> and 4<sup>th</sup> March 1998.

The development of the research work has been completely in accordance with all requirements of the contract and no particular difficulties have been encountered during the development of the study.

An information and communication protocol between Partners was agreed. Both fax and e-mail are used. When e-mail was used Partners were asked to acknowledge receipt of message within 24 hours otherwise non-receipt was assumed. The standard for documents was WORD6 and spreadsheets is EXCEL5 operating in the Microsoft Windows environment.

All Partners carried out the work in accordance with the existing QA procedures at their respective organisations.

For the present research work a liaison with CEN/TC/250/SC1 has been established. This liaison was approved by SC1 with the resolution n° 76 dated May the 23<sup>rd</sup> 1997.

According to the Annexe 2 to the tender each participant had contacts with the National Meteorological Offices of specific European countries, in order to collect snow data and to receive their comments.

As for the NMO, contacts were made, according to Chapter 4 of the tender, with National Technical Contacts, who were also formally invited to the meeting held in Ispra on 4<sup>th</sup> of July 1997.

All financial aspects have been regularly fulfilled by the contractor and by the Commission in respect of terms foreseen by the contract.

## **A2 Snow loads/depths data base / density models**

This Annex presents summary information on the sources, the nature and the availability of snow data in each country.

### **A2.1 Austria**

The annual (partially monthly) maxima of snow depth (m), measured at 7 o'clock in the morning, were purchased, for this contract, from the Austrian Meteorological Office. In Austria the snow depth is measured by means of a ruler. There were 2-4 measurements per station and the final value of snow depth is the mean of these.

Period of measurements: 1947 – 1997.

Total number of stations is 160.

The minimum period of observations is 30 years.

80 stations have a record period of 50 years.

All data were available in electronic format as ASCII data.

Additional information for the stations is: the number (according to the Austrian meteorological office), geographical co-ordinates, and altitude.

### **A2.2 Belgium and Luxembourg**

Thirteen meteorological stations were selected in Belgium and one in Luxembourg. Unfortunately, there is only a short period available on computer (12 years, from 1985 to 1996), but there are several complete samples from the data used by R. Sneyer (data from 1947 to 1965). 6 stations have an altitude lower than 100 m, 3 stations have an altitude included between 100 and 200 m, 3 stations have an altitude included between 200 and 500 m and 2 have an altitude greater than 500 m.

The statistical sample for each station is constituted by the annual maximum of daily maximum snow depths. For several stations there are some years without snow; a year is considered without snow, if the annual maximum snow depth is lower than 1 cm.

To evaluate snow load from snow depth, an average density of  $1,5 \text{ kN/m}^3$  was used.

### **A2.3 Denmark**

The Danish Meteorological Institute records snow depth and snow cover on a routine basis. Simultaneous measurements of snow density and relevant climatic parameters were performed for the period 1971-80 at one station in Southern Jutland. To estimate water equivalents from other known meteorological parameters, a simulation model was used, that simulates the development of a snowpack. Simulations have been made for seven synoptic stations in the period 1971 – 79.

Unfortunately, the detailed data have been lost and are not available for further analyses. However work on snow loads is in progress in Denmark, but results were not available for incorporation in Phase I of this research.

#### A2.4 Eire and United Kingdom

Measurements of snow depth are taken by ruler at 0900 GMT and recorded to the nearest whole centimetre on a daily basis, whenever snow is lying on the ground. Prior to 1971 measurements were made to the nearest inch. This alters the discrimination in recorded snow depth values for stations with records starting before 1971.

Water equivalent of lying snow is recorded at some stations in the UK, also at 0900GMT, on days when the total snow depth is at least 2cm. The average snow water equivalent value from at least three samples is recorded along with the corresponding depth of snow cover. Water equivalent records for Eire are not available.

The computer records of snow depth data for the network of 14 synoptic stations in Eire were purchased from Met Eirreann. All these stations have records in excess of 30 years which are quality checked.

The UK Met Office supplies data without quality assurance. A preliminary pilot study for a small region of the UK revealed some stations with a significant number of errors in the data. Given the relatively small data set for the UK and the type of errors found, the inclusion of erroneous data would significantly affect results. This must have occurred during the previous determination of characteristic snow loads in the UK and therefore questions the reliability of snow loads given in both the UK snow loading standard BS6399 Part 3 and in Annex A of ENV 1991-2-3 [Ref. 1]. Hence data quality is particularly important for UK and all data therefore had to undergo a thorough programme of quality checking prior to analysis. Checking programs developed by BRE highlighted potential errors where there were exceptionally large snow depths or large differences in snow depth on consecutive days. These data were then checked against the original daily records in the Archive and also against alternative sources of information. Many transcription errors were discovered and corrected. In preparing the UK data for analysis, it also became apparent that many records were incomplete, although from the data supplied, it was impossible to determine whether gaps in the data set were due to zero years or failure to record. Extensive cross-checking against alternative sources has been necessary to validate the continuity of many data records.

Following these checking procedures, only 235 UK stations were considered to have data records suitable for analysis. Seven of these stations have records for more than 40 years; 154 have between 30 and 40 years of data and 62 have between 20 and 30 years of data. The remaining 12 stations have only between 12 and 19 years of data, but have been included in the data set to ensure a reasonable geographical coverage of stations for the analysis.

Forty seven stations in the UK were found to have records of both snow depth and water equivalent for more than 10 years and these data were copied from paper record in Met Office archive by BRE staff. These records were transferred to computer for use in developing a more reliable water equivalent model for UK and Eire.

#### A2.5 Finland

Finland has long traditions in studies of snow. Snow observations started as early as about 1750. In 1909 two observation networks, started in the eighteen-nineties, were integrated under the Central Meteorological Institute. Since then snow recordings have been expanded gradually. "Snow

courses”, started in 1946 in the Hydrological office, now constitute the basic network of snow surveys in Finland. In a snow course, snow depths are measured with specified distance intervals along a line, and densities are measured at specified depth measuring points.

The time intervals of the recordings have been:

until 1968: monthly, on the 16th day in each month

1968-96: twice each month, on the first and 16th days

Daily water equivalents between the observations are interpolated by using daily precipitation and air temperature data.

## A2.6 France

Meteo France has selected 128 meteorological stations distributed on the French territory with a long observation period (since 1945) and situated at low altitude : 98 stations have an altitude lower than 200 m, 24 stations have an altitude included between 200 and 500 m, 4 stations have an altitude included between 500 and 1000 m and 2 have an altitude greater than 1000 m.

Only the daily maximum of snow depth on the ground is measured, the statistical sample for each station being constituted by the annual maximum of daily maximum snow depth. But for several stations there are some years without snow, particularly in the south of France; a year is considered without snow if the annual maximum snow depth is smaller than 1 cm.

## A2.7 Germany

### Western Germany

Measurements of daily snow depth (cm) (but not regularly) and water equivalent (3 times per week, not regularly) were available for:

140 climatic stations with the maximal period of observations 1950-1983,

(some stations have a smaller record period)

173 precipitation stations with the maximal period of observations 1950-1981

(some stations have a smaller record period)

There were some gaps in the records.

Snow data and the numbers of stations were available in electronic format (standard ASCII).

Additional information for the stations: the number (according to German meteorological office), geographical co-ordinates, and altitude was supplied in manuscript form and digitised.

### Eastern Germany

The following meteorological data were available for 23 climatic stations:

Daily maximum, minimum and mean value of shade air temperature (0° C)

Daily values of precipitation (mm)

Daily values of snow depth (cm), measured at 7 o'clock in the morning.

There are gaps in the records.

Values of water equivalent (mm) - 3 times per week, measured at 7 o'clock in the morning. There are gaps in the records.

Period of observations: 1947-1993, with some exceptions.

Snow data and the numbers of stations are in electronic format (standard ASCII).

## A2.8 Greece

Greek snow data were obtained from the archives of the National Electric Company, for a total number of 96 stations. These were chosen for the duration of the period of measurement (longer than 20 years) and to give a reasonably homogenous coverage throughout all of Greece. Stations are located mainly at high altitudes, but there are stations located at low altitudes which have fewer and less reliable data.

The data contain daily measurements indicating the water equivalent of snow fallen in the 24 h period; measurements are taken at 09:00 .

Data were available in manuscripts and it was necessary to input them to computers.

For all stations geographical co-ordinates and altitude were available, as were the following supporting qualitative information: wind presence and sunny or cloudy weather.

The accumulation of snow is very rare and starting from daily data it is treated by summing up the depths of three consecutive days' snowfall.

## A2.9 Iceland

A report from the Icelandic Meteorological Institute dated September 1997 (in Icelandic) became available towards the end of Phase 1. The Icelandic Meteorological Institute records snow depths on a routine basis, normally each day. The report contains calculated snow depths in Iceland with 50 years return periods based on this data collection.

## A2.10 Italy

Italian data sets for the elaboration of characteristic snow load values were collected from the archives of the Italian Hydrographic Service, for a total number of 99 stations, of two different types:

a) measurement taken three times per month (at 10<sup>th</sup>, 20<sup>th</sup> and 30<sup>th</sup>), indicating the depth of the snow cover on the ground expressed in centimetres measured at 9:00 o'clock. This kind of data were collected for stations located at high altitudes because of the usual long duration of the snow cover on the ground. Data were collected for 46 stations for a period of 30 years (1940 - 1970)

b) daily measurements indicating the depth of snow cover and the 24 h depth of snowfall, measured at 9:00 o'clock. Such data were collected for 53 stations at low altitude to integrate data described above for a period of 40 years (1950 - 1990).

Data were available in manuscripts and it was necessary to input them to computers.

Stations were selected for the continuity of the measurement period and to give a reasonably homogeneous distribution throughout Italy.

For all stations geographical co-ordinates and altitude were available, along with the following supporting qualitative information for type b) stations: wind presence and sunny or cloudy weather.

## A2.11 Netherlands

The following meteorological information was acquired from the Dutch Meteorological Office:

Annual maxima of snow depth (cm) of:

13 rainfall stations with period of observations 1961-1996

1 rainfall station with period of observations 1961-1967

1 rainfall station with period of observations 1961-1970

These stations are uniformly spread across the country.

For 15 synoptical stations (having the same geographical co-ordinates as the rainfall stations above) the daily measurements:

Snow depth (cm)

Mean wind speed (m/sec)

Maximum temperature (0°C)

Minimum temperature (0°C)

All data are in electronic format (standard ASCII).

#### A2.12 Norway

General precipitation observations including snow depths exist from 1895 until today. In the period 1899-1931 some stations recorded the average densities, in the period 1899-1908 daily, and in the period 1908-1931 every 5th day.

Recordings from stations spread all over the country were analysed in the 1970's. For observations where only the snow depth had been recorded, a value of 300 kg/m<sup>3</sup> was used as valid for density at maximum snow depth. In 1988 40 stations in the counties Telemark, Rogaland, Nordtrøndelag and Nordland, partly additional to those in the Norwegian Standard NS 3479, were analysed. In this investigation snow depths in additional years were included, and variable densities during the winter were used (December 225, January 238, February 250, March 275, April 300 and May 325 kg/m<sup>3</sup>). Since May very seldom is relevant, this assumption of density variation is slightly less conservative than the one from 1979. In 1989 18 stations in the most urbanised municipalities in south-eastern Norway (Oslo, Asker and Baerum) were considered in the same manner.

#### A2.13 Portugal

Snow cover records were obtained from the Portuguese Ministry of Environment - Meteorological Institute (Climate and Climatological Change Department). These records included daily snow cover records from relevant meteorological stations together with the location details for all their meteorological stations. Data were available from 1941 on magnetic storage and on paper from 1931 and cover the period to the end of 1994. In total 112 stations on the mainland and 25 stations in the Portuguese Islands (Azores, Madeira) have been examined. Among the 112 stations on the mainland 79 were reported without relevant uncertainties and therefore considered in the analysis.

The daily snow cover is not a precise measurement but a code which represents a depth interval. This code is an integer in the range 0 to 9 where 0 equates to no snow, 4 equates to the interval 10÷15 cm, 7 to the interval 50÷100 cm and 9 greater than 200 cm. Over 97% of the total daily observations from the stations indicate no snow.

Snow density measurements in Portugal are not carried out and therefore the density values of the neighbouring Spain were assumed.

#### A2.14 Spain

Snow cover and station location data for a total of nine stations located in the mountain regions of Spain and 1075 thermo-pluviometric stations above 200 m altitude with at least 15 years of

measurements were obtained from the Spanish Ministry of Environment - National Meteorological Institute (Climatological Department). Additionally daily water equivalent values when the minimum temperature was less than or equal to zero degrees Celsius were included in the data from the thermo-pluviometric stations. Measurements date from 1893 to the present day.

Additionally JRC - Institute for Systems, Informatics and Safety (Agricultural Information System Unit) provided location data for 76 stations and daily snow cover records for 41 stations. Some of these stations however have records with lengths which are too short to be used for this work.

In total 1127 stations on the Spanish mainland and 32 in the islands (Balearic, Canary) were examined. Among the 1127 stations on the mainland 300 were selected using the following criterion: under 700 m of altitude with an observation period not less than 30 years and under 2000 m with an observation period not less than 50 years. Between the two stations of the Balearic Island the one reputed without relevant uncertainties was considered in the analysis.

#### A2.15 Sweden

Snow depths from the period 1907-1990 (84 years) have been used as a basis for a statistical treatment. Annual maximum depths have been taken from 40 stations, including stations along the coast as well as stations in the mountainous parts and intermediate places. Data from the period 1909-25, when both depth and density measurements were carried out to a large extent, have been analysed with the objective of finding a method for the determination of density at the time of maximal snow load. Through multiple regression the density of the snow cover has been linked to the depth and age of the snow cover. The calculated densities have been verified against new independent data from Swedish Meteorological and Hydrological Institute from the period 1978-94. The results regarding density at the time of maximum snow load agree, with a standard deviation of 0.02 to 0.07 between the new-recorded data and the model based on the old data. For the computation of snow loads in Sweden the resulting densities have been simplified and standardized, also intending a harmonization with Finland, Denmark and Norway, as follows:

Norrland to Dalsland (Internal, partly mountainous)	230 kg/m <sup>3</sup>
Götaland's coast, Gotland and Öland (islands)	280 kg/m <sup>3</sup>
Remaining parts of Sweden	240 kg/m <sup>3</sup>

#### A2.16 Switzerland

In Switzerland 4 federal research institutes carry out snow load measurements:

- Snow and Avalanche Research Institute at Davos
- National Meteorological Institute of Switzerland
- Swiss Federal Institute of Technology, Department of Geography
- Federal Research Institute for Forest, Snow and Country side

Measurements exist for 237 stations all over Switzerland. Stations in the alpine region measure mainly water equivalents (from this investigations 168 stations are used), operated by Snow and Avalanche Research Institute at Davos. For the stations in the rest of Switzerland snow depth is measured by National Meteorological Institute. Approximately 10 % of the stations started operating before 1950, 25 % opened between 1951 and 1960, 40 % between 1961 and 1970, 20 % between 1971 and 1980 and 5 % after 1981.



The following table summarises the density models used in the calculation of national standards before the present research work.

*Table A2. 1 Models for density used in the national standards in different CEN countries*

No.	CEN member	Density (kg/m <sup>3</sup> )
1	Austria	250-300 altitude less than 1500 m above the sea level 350 altitude greater than 1500 m above sea level
2	Belgium	150
3	Denmark	Canadian snow pack model of Leaf/Brink [27], 200 - for naturally packed snow
4	Finland	Direct measurements of water equivalent, $\approx 250$
5	France	150
6	Germany	Snow load factor of German Meteorological Office (DWD) $D = 159.81 + 129.82 h - 81.09 h^2 + 59.907 h^3 - 20.652 h^4$ for $h < 1.53$ m $D = 270$ for $h \geq 1.53$ m
7	Greece	125
8	Ireland	150
9	Iceland	Snow density: $D = 250 + h + 6 \cdot t_w$ where $h$ - snow depth in cm $t_w$ - mean temperature in the coldest winter month in °C
10	Italy	For low altitude: 250 For high altitude time-dependent model is used: 217 - 315 initial density value 315 mean density value in the constant period of the winter 315 - 529 increasing density value at the melting period
11	Luxembourg	150
12	Netherlands	100
13	Norway	225 - 325 for maximum depths occurring in December to May
14	Portugal	no data
15	Spain	During the period of maximum snow load: 326 - for altitude from 1500 m to 2000 m 266 - for altitude from 1000 m to 1500 m 200 - for altitude from 800 m to 1000 m 150 - for altitude less than 800 m
16	Sweden	Different values for different parts of country: 230 - for Norrland to Dalsland (Internal, partly mountainous) 280 - for Götaland's coast, Gotland and Öland (islands) 240 - for remaining parts of Sweden
17	Switzerland	100 - for the new-fallen snow 200 - for snow after several hours or days since snowfall 300 - average value at maximum snow load 350 - old snow (after weeks or months since snowfall) 400 - wet snow
18	UK	150

### A3 Probabilistic analysis of ground snow data: examples

One of the purposes of the European Snow Load Research Program is to analyse the ground snow load data with probabilistic methods. In the Background Document of SC1/TC250/PT1 Snow Load [4], 1995 the different types of uncertainties had been discussed. They are summarised below :

- statistical uncertainty
  - measuring techniques
  - location of station
- model uncertainty
  - transformation from depth of snow layer to snow load
  - selection of probabilistic distribution function, probabilistic model
  - determination of mean recurrence interval MRI
  - regionalization of snow load

To elaborate a complete European Ground Snow Load Map probabilistic analyses of the ground snow load data in the 18 CEN countries was performed. . The results of Germany and Switzerland are presented as examples in this annex.

#### Germany

Original data, water equivalent measurements three times per week, are available for 331 stations. Most of the stations from Western Germany have a record period of 30 years, most stations from Eastern Germany - 46 years. There are two stations with - 100 years.

The mean value, standard deviation and coefficient of variation of the annual maximum of snow load versus altitude can be seen in Fig. A3.1 and A3.2. Standard deviation and coefficient of variation versus mean value can be seen in Fig. A3.3.

*Figure A3.1 Mean values and standard deviation of annual maximum of snow load versus altitude*

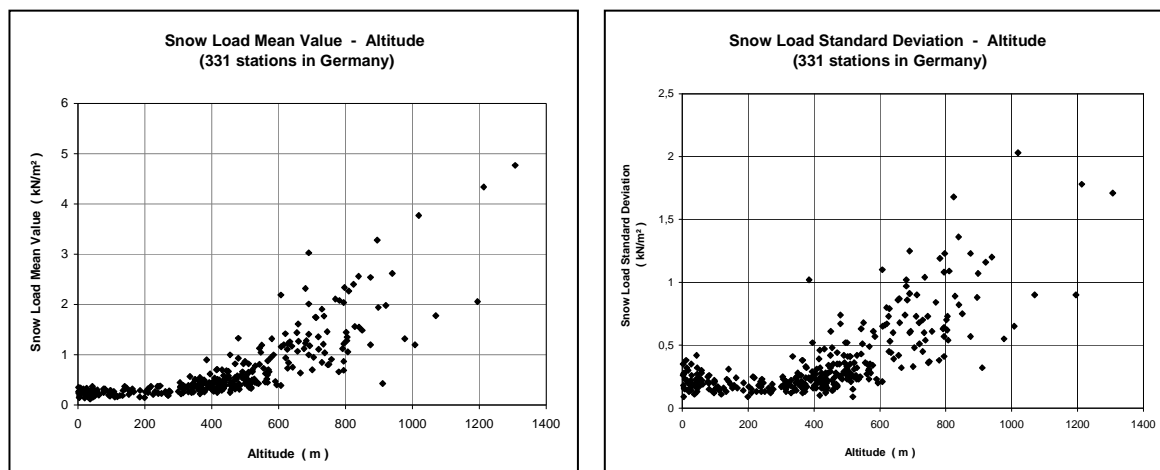


Figure A3.2 Coefficient of variation of annual maximum of snow load versus altitude

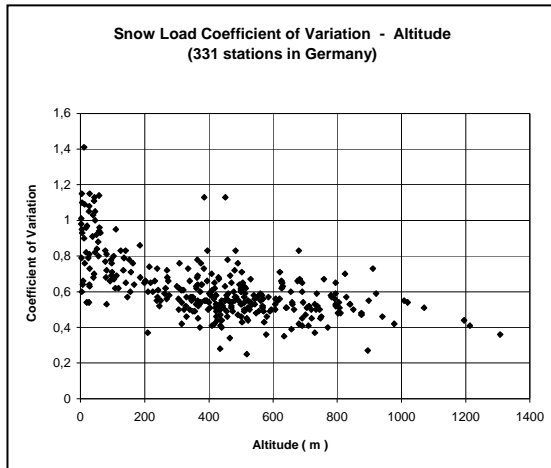
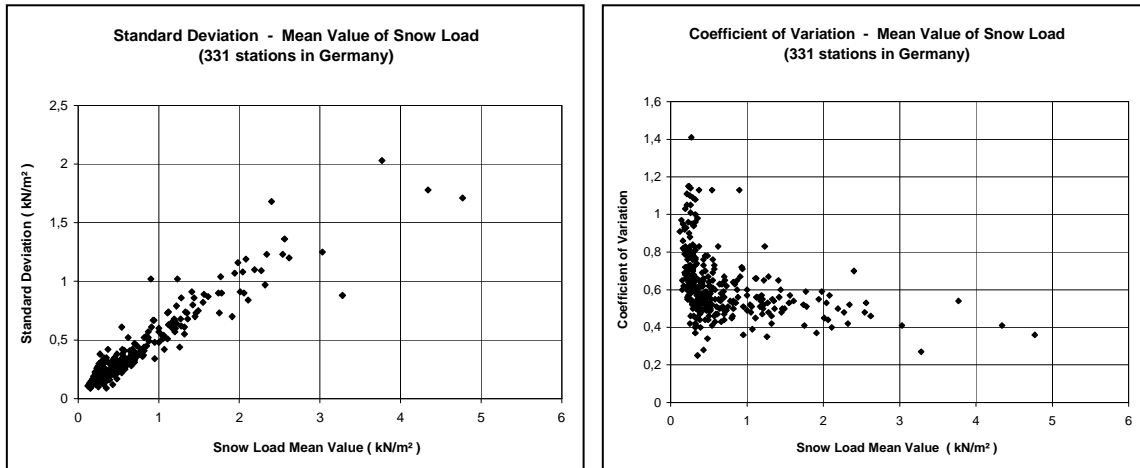


Figure A3.3 Standard deviation and coefficient of variation versus mean value



As can be seen from these figures, the mean value and standard deviation increase with altitude while the coefficient of variation has a tendency to decrease with altitude (Fig. A3.2). But the same figure shows that the scatter is very large: from 0.2 up to 1.4. The largest values of the coefficient of variation are observed at low altitudes. This is the statistical reason why different PDF's provide the best fit to the data at different stations.

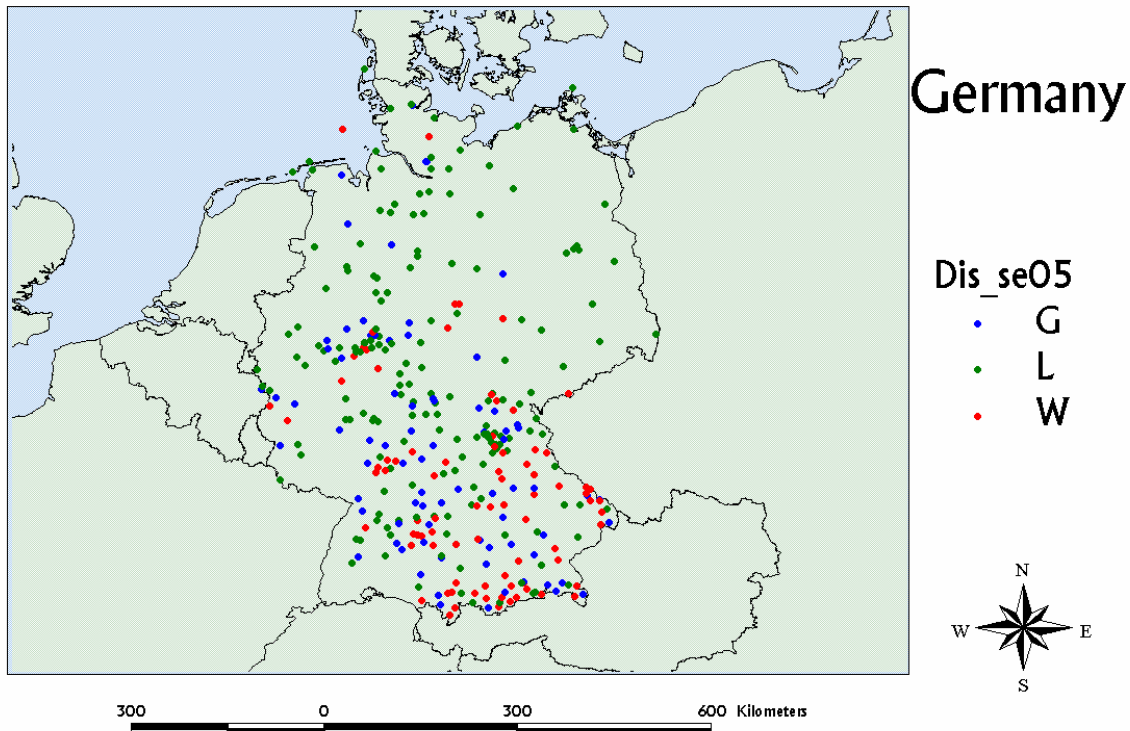
Another reason is geographical (climatic). Middle and southern Germany have a rather heterogeneous relief, many of the middle high mountains are cut by the valleys. This causes very strong differences between local climatic conditions.

The application of the approach described in section 4.3.3 (ie. probability plot, LSM, coefficient of correlation between reduced variable and snow load values) shows the following results for the 331 meteorological stations in Germany:

- Gumbel distribution is the best fitting PDF for 78 stations
- Log-normal distribution is the best fitting PDF for 171 stations
- Weibull distribution is the best fitting PDF for 82 stations

Thus the log-normal distribution fits best in 52%, Gumbel in 23%, and Weibull in 25% of all stations. The locations of the stations with the different PDFs can be seen from Fig A3.4.

Figure A3.4 Location of stations with different best fitting PDF in Germany



The colours of this map mean the following:

- blue - station with Gumbel distribution as the best fitting PDF
- green - station with Log-normal distribution as the best fitting PDF
- red - station with Weibull distribution as the best fitting PDF

From this map it can be seen that northwards of the middle high mountains (51-52 degree of north latitude) a log-normal distribution dominates. The northern lowland (Norddeutsche Tiefebene) and almost all eastern Germany (the former DDR) belong to this region.

Southwards of this latitude the map is very heterogeneous. In the middle high mountains Hessische Bergland, Taunus, Fichtelgebirge and also in the flatland of low Rhein (Niederrhein) the Log-normal distribution dominates again.

The Log-normal PDF also prevails in more than 50% of stations in Rothaargebirge (mixed with Gumbel and Weibull), Fränkische Schweiz (with Gumbel and Weibull), Frankenwald (with Weibull), Schwarzwald (with Gumbel), and Rhön (with Gumbel).

The Weibull PDF dominates in Odenwald, Böhmerwald, Bayerischer Wald (mixed with Log-normal), Frankische Alb (with Gumbel), in Harz and in the high western Alps (Allgäuer Alpen).

The Gumbel PDF dominates in Sauerland, Weser-Bergland (mixed with Log-normal), Donau Ebene (mixed with Weibull), Oberschwaben (mixed with Log-normal) and in the high eastern Alps (Chiemgauer Alpen).

In some mountain regions the best fitting PDF depends obviously on the wind direction. For example in northern Eifel the Log-normal distribution dominates, on the south-eastern slopes Gumbel is the prevailing PDF. There is a very complicated situation in Schwäbische Alb: Gumbel dominates in the North, Log-normal - on the north-western slopes and in the West, Weibull - on south-eastern slopes. A mixed picture is also observed in Taubergrund, where only in the east does the Log-normal PDF dominate.

All the above confirms the complexity of the choice of the PDF for a large regions. For future research it is recommended that to solve this problem it will be necessary to work together with meteorological people taking into account local climatic conditions. As a pragmatic decision for Germany the following rough procedure can be proposed:

- In regions northwards of the middle high mountains (ie 51-52 degree of north latitude) the Log-normal distribution should be used in order to calculate the characteristic values of snow load.
- In middle and southern Germany the Gumbel distribution should be used in order to calculate the characteristic values of snow load, even in regions where Weibull dominates. This is because in comparison with the Weibull PDF Gumbel gives slightly larger 50 year MRI values (i.e. is on the safe side).

## Switzerland

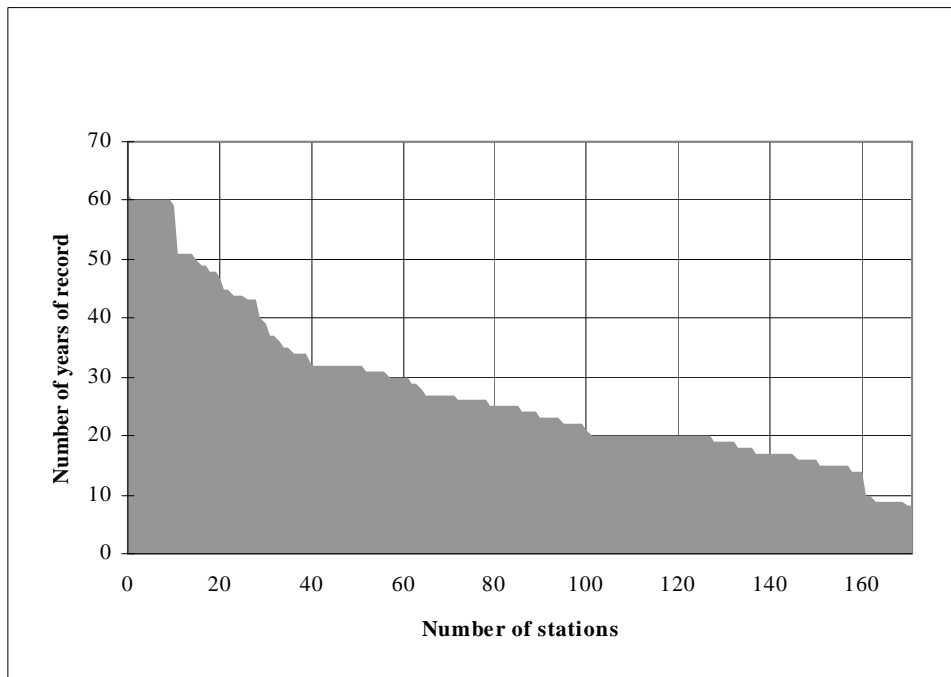
### *Ground snow load data base*

The following data base was used for the probabilistic analysis of ground snow data:

- 105 meteorological stations of the National Meteorological Institute of Switzerland (SMA) with a station altitude between 261 maSL (Rheinfelden), 275 maSL (Lugano) and 2500 maSL (Säntis), measuring snow depth twice a day, determining the snow load from the snow depth using the depletion model of Martinec, 1977 and Rohrer, 1992.
- 63 meteorological stations of the Snow and Avalanche Research Institute at Davos (SLF), with a station altitude between 1090 maSL (Oberiberg) and 2540 maSL (Weissfluhjoch) measuring water-equivalent every one, and partly every two, week.

A histogram for the number of years of records can be seen from the following figure. Stations with period of measurement of less than 8 years are excluded.

Figure A3.5: Number of years of record of ground snow depth or water-equivalents



*Statistics of data sets*

As a general statistical analysis the data sets of the annual maximum snow depth or water-equivalent values for all stations are investigated. The mean and the standard deviation versus altitude of all data sets are shown in figure A3.5, the coefficient of variation versus altitude in figure A3.6. As can be seen from this figure the variation of the data decreases with increasing altitude. A remarkable difference between the two data sets is also apparent: The SLF-data seem to be far more homogeneous, which is due to water-equivalent measurements and the fact that SLF records are at a greater altitude and therefore also show larger snow load values.

FigureA3.5: Mean and standard deviation versus altitude

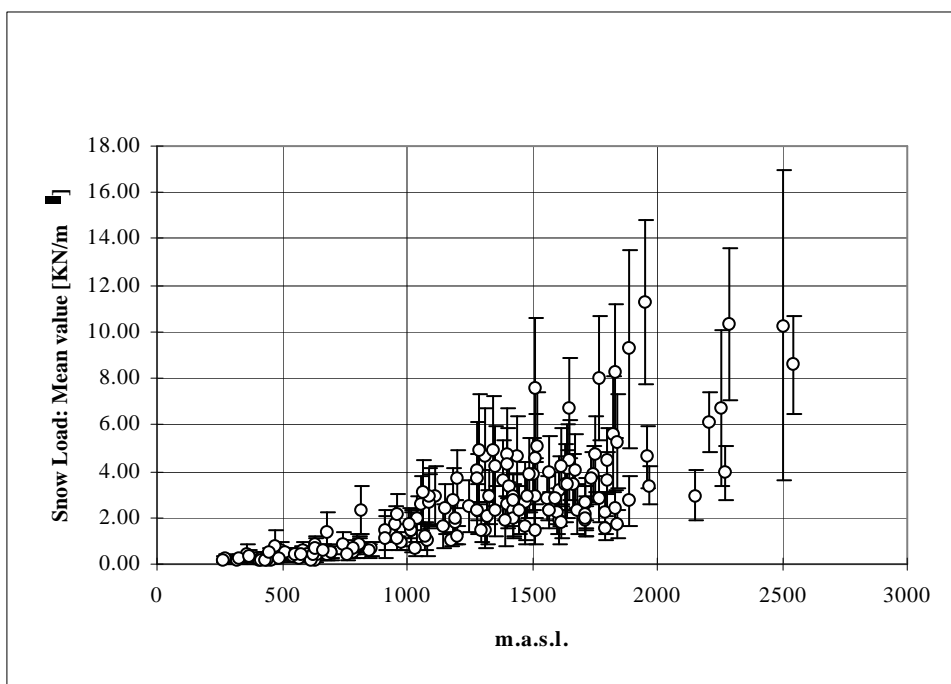
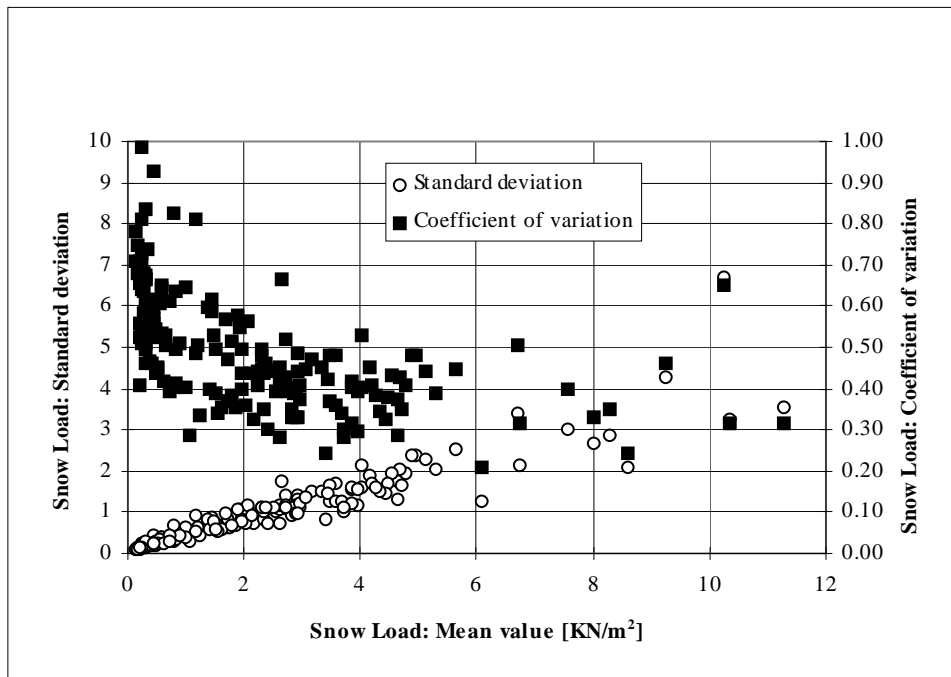


Figure A3.6: Standard deviation and Coefficient of variation versus mean of yearly maximum snow load



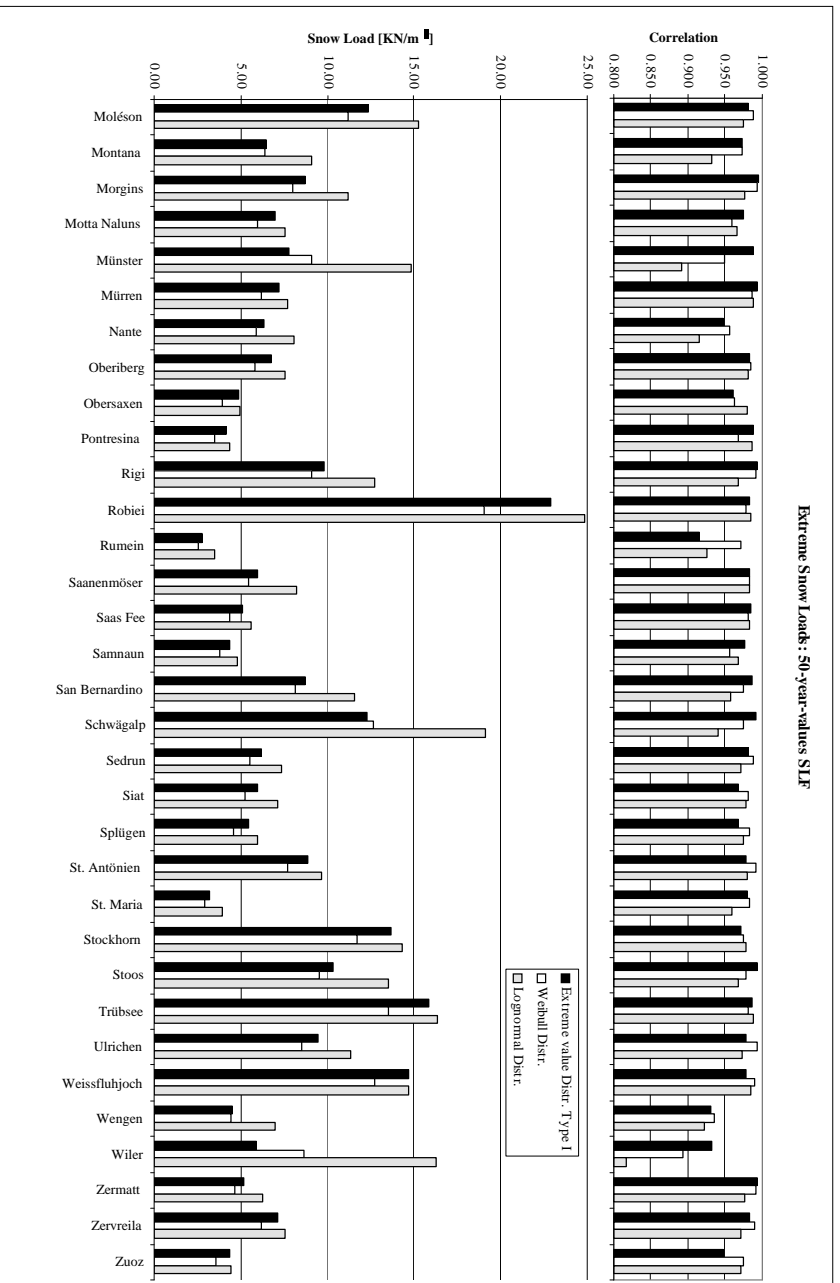
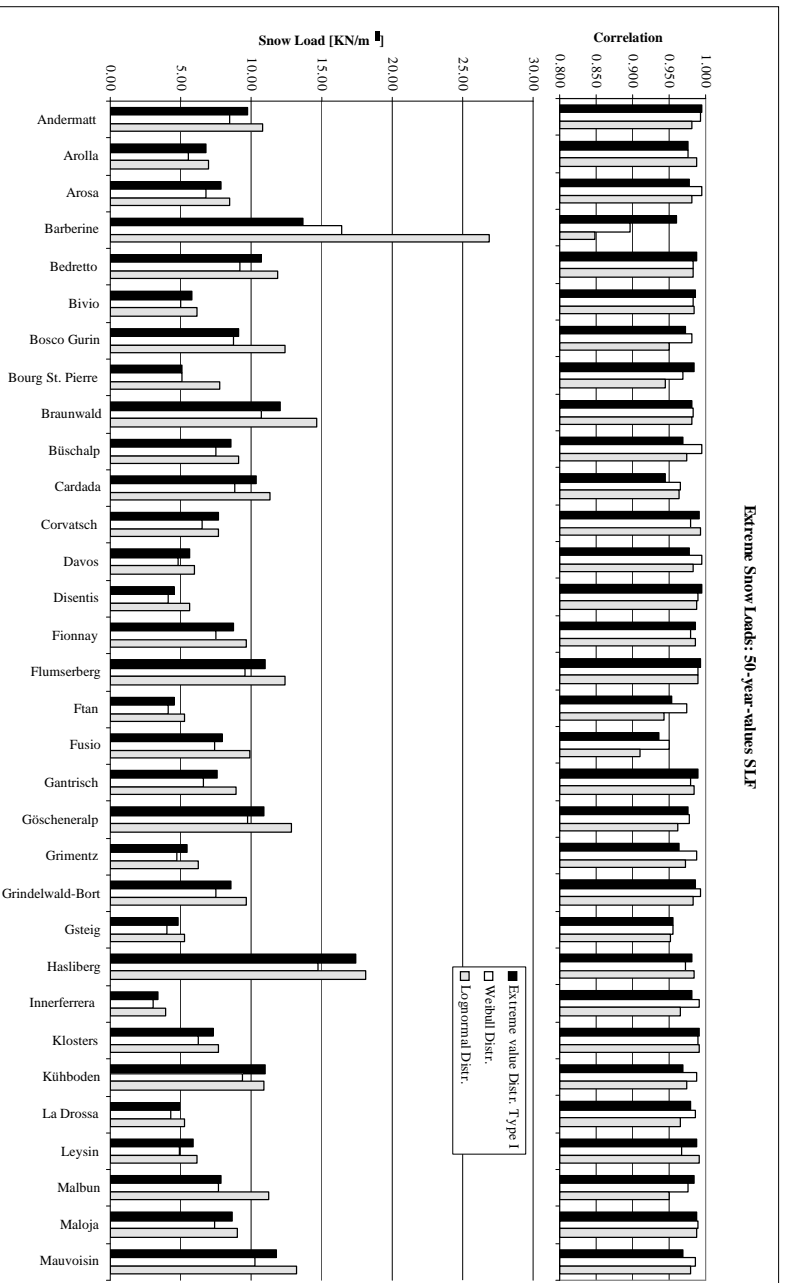
For the verification of data further research work would be required, such as (examples)

- data checking  
The data from Snow and Avalanche Institute (SLF) is checked thoroughly. No irrelevant measuring or data transmission errors should be found if rechecked. For the values of the National Meteorological Institute (SMA) two data sets for each station exist. There are different values, a check of the correctness of these data would be very time-consuming. In general the differences were not high. A reasonable result can be expected.
- influence of different periods of measurement  
As shown in figure A3.4 the number of years of observations is very different. For the present study all maximum values are considered. Possibly influencing criteria, such as smoothing of extremes over a longer period of records, changes of climate, are not taken into account,.
- influence of different measuring techniques  
As discussed for figures A3.5 and A3.6 different measuring techniques give different values of standard deviation and coefficients of variation. Further elaboration of this phenomenon might lead to interesting results.

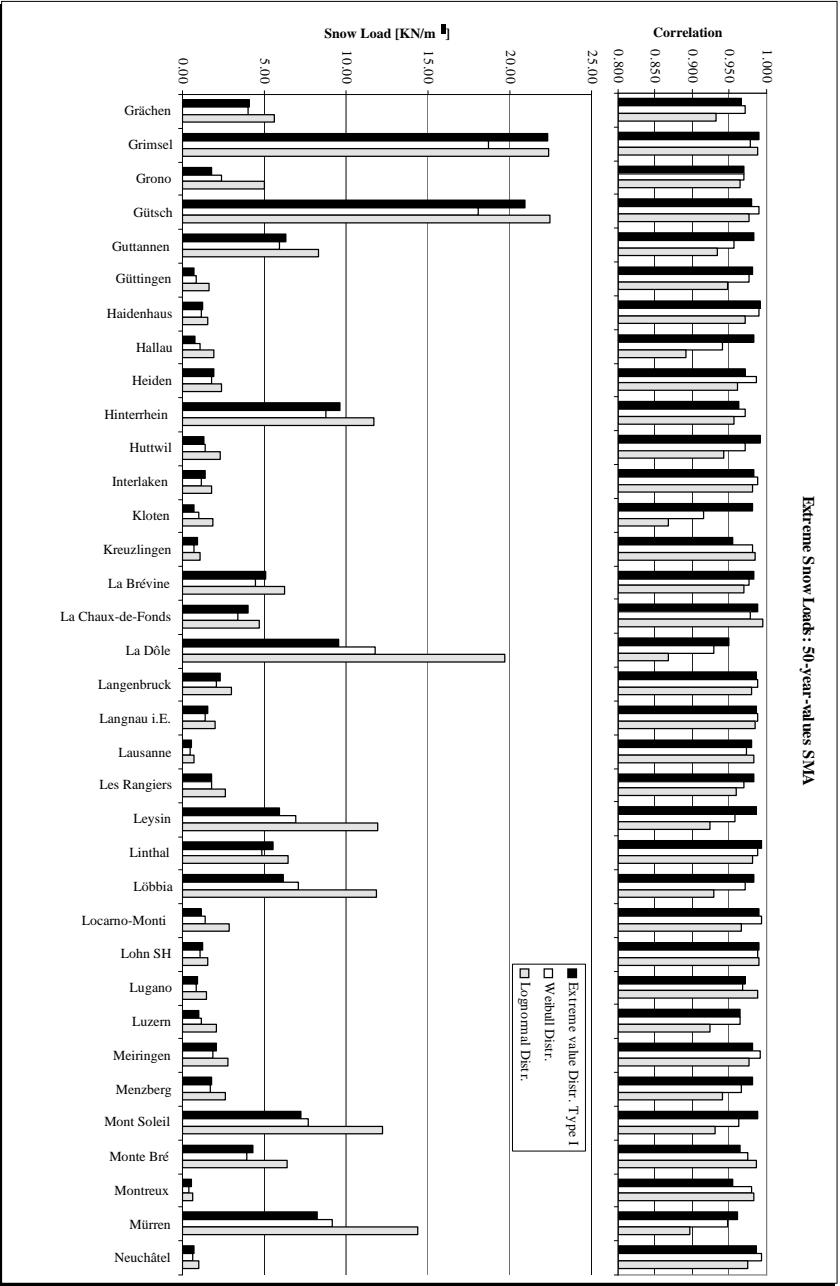
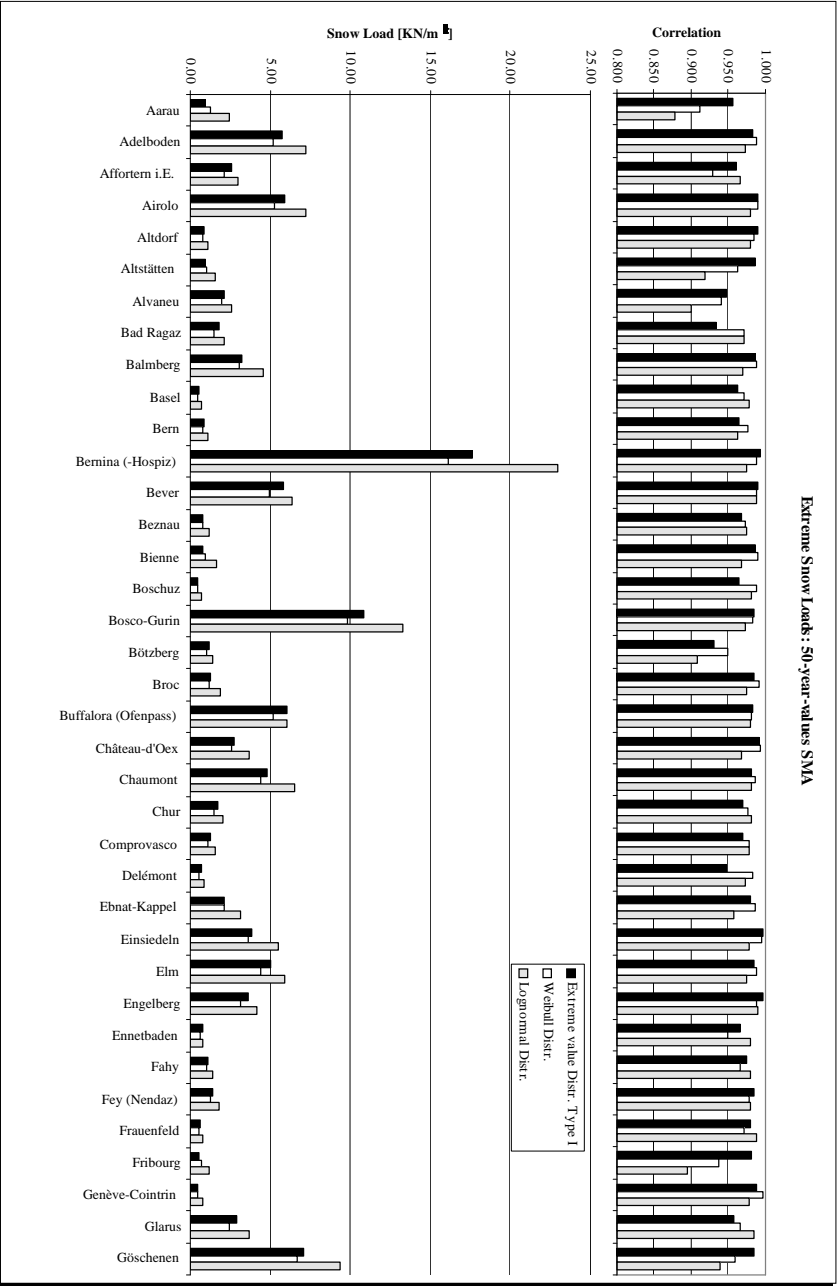
#### *Different types of probability distribution functions*

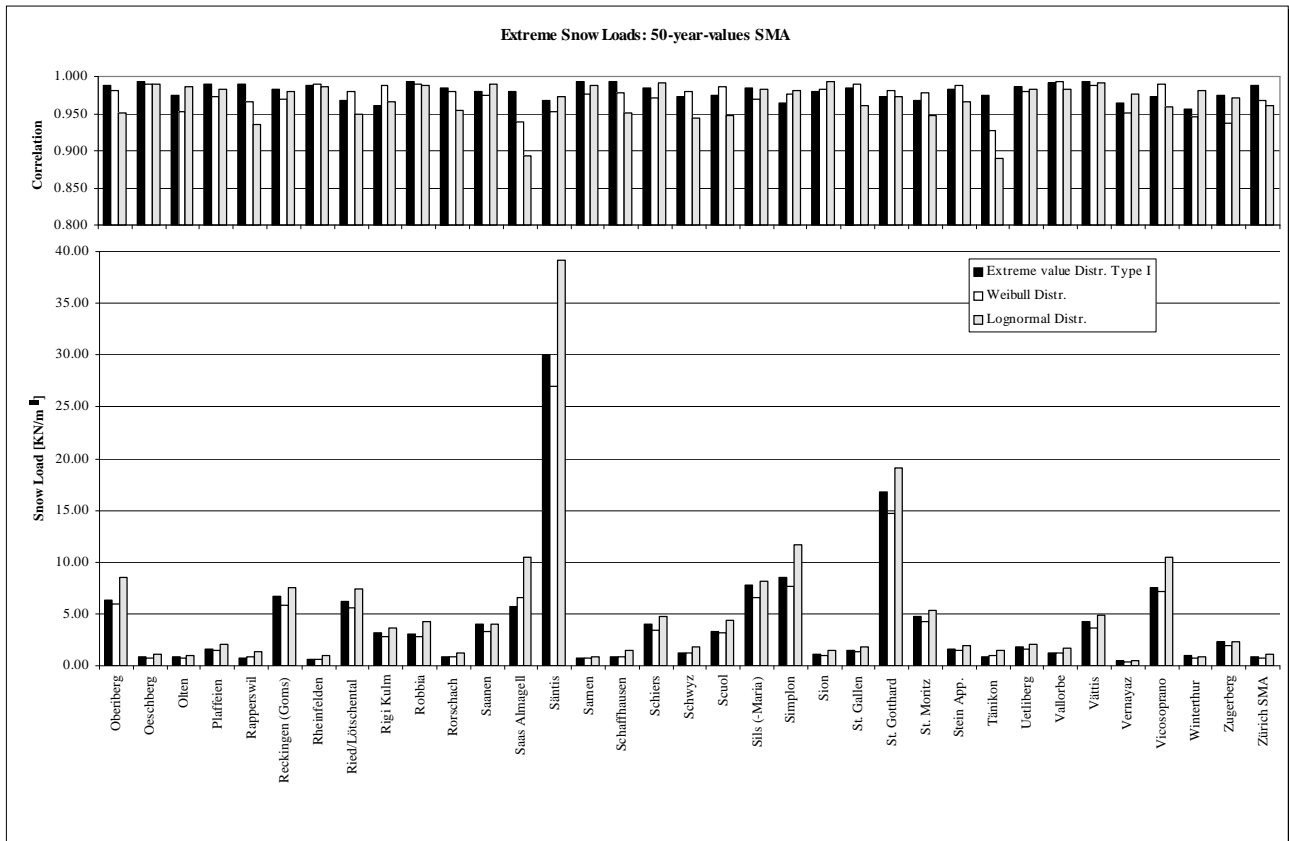
As described in section 4.2 and 4.3 different types of pdf are discussed. The following figures show a detailed analysis of all the stations of the two data sets of ground snow loads.

Figure A3.7: 50 yr - MRI ground snow load and correlation coefficient for a sample of meteorological stations





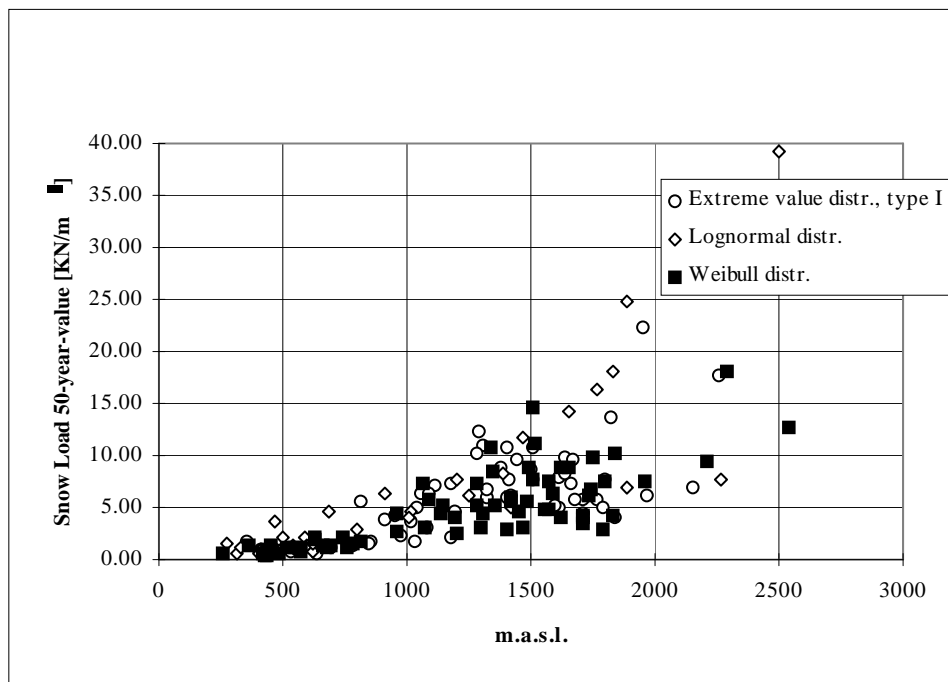




From these figures the following conclusions can be drawn:

- $R^2$ -difference (square of Coefficient of Correlation)  
 In general all stations show relatively small  $R^2$ -difference for the different pdf with some extreme exceptions, to be discussed later.
- The number of stations of each best fitting pdf is as follows:
  - 68 Gumbel
  - 66 Weibull
  - 34 Log-normal
- 50 yr MRI ground snow load differences  
 The difference in the 50 yr MRI ground snow load for the different pdfs is generally relatively small. Again there are some stations with huge differences.
- stations with big differences of the  $R^2$ -coefficients and the 50 yr MRI ground snow loads  
 Most of these stations show the best  $R^2$ -coefficients for the Gumbel-distribution, for which the smallest 50 yr MRI ground snow load has been determined.
- influence of altitude on the selection of the pdf  
 As can be seen from figure A3.8 most stations at high altitude have of course high 50 yr MRI ground snow load and - what is interesting - have the Gumbel distribution as best fitting pdf; the Log-normal distribution is best fitting for low stations and the Weibull-distribution for stations at all altitudes. From other investigations this result might be expected.

Figure A3.8: Probabilistic distribution function and 50 yr MRI ground snow load versus altitude for all meteorological stations



From the probabilistic analysis of the ground snow data some interesting results have been found. More detailed research work will be necessary to reduce consistently the uncertainties mentioned at the beginning of this annex. Of particular interest would be the analysis of the data in other (neighbouring) countries.

## A4 European Snow Load Data Set

### A4.1 European Snow Loads Data Set

The table below lists the whole European snow data set, with the calculated ordinary characteristic snow data for each station. Also marked, with a star, are the climatic stations where exceptional values have been encountered, further information on which can be found in A4.2

Table A4.1 European Snow Loads Data Base

Country	CODE	NAME	LON (DD)	LAT (DD)	ALTITUDE (m)	LOAD (kN/m <sup>2</sup> )	NYRS	EXCEPT. LOAD
AT	9500	ABTENAU	13.33	47.55	714	5.25	34	
AT	9900	ADMONT	14.45	47.57	646	3.63	37	
AT	9801	AIGEN	14.13	47.53	640	2.56	35	
AT	5700	ALTENMARKT/TRIESTING	16.00	48.02	397	2.93	33	
AT	5315	AMSTETTEN	14.87	48.12	275	1.77	43	
AT	10600	ASPANG	16.08	47.55	498	2.70	37	
AT	9640	BAD AUSSEE	13.78	47.62	665	5.14	40	
AT	20001	BAD BLEIBERG	13.67	46.62	907	5.67	34	
AT	19201	BAD GLEICHENBERG	15.90	46.87	303	2.67	50	
AT	9605	BAD GOISERN	13.62	47.63	510	4.39	35	
AT	9610	BAD ISCHL	13.63	47.72	469	3.79	50	
AT	9700	BAD MITTERNDORF	13.95	47.55	803	5.32	33	
AT	5870	BADEN	16.23	48.00	249	1.94	37	
AT	15515	BADGASTEIN	13.12	47.08	1100	3.66	50	
AT	13701	BERNSTEIN	16.25	47.40	600	2.29	48	
AT	12504	BISCHOFSHOFEN	13.22	47.40	550	3.69	33	
AT	11104	BREGENZ	9.75	47.50	436	2.13	50	
AT	14801	BRENNER	11.52	47.00	1450	5.74	50	
AT	13301	BRUCK/MUR	15.27	47.42	489	2.50	50	
AT	6000	BRUCKNEUDORF	16.83	48.00	167	1.48	36	
AT	14100	BUERS	9.82	47.13	567	3.19	50	
AT	19700	DELLACH	13.08	46.73	620	4.78	35	
AT	10800	DEUTSCHKREUTZ	16.62	47.60	192	1.65	42	
AT	18905	DEUTSCHLANDSBERG	15.22	46.83	410	2.85	36	
AT	18000	DOELLACH	12.90	46.95	1010	4.55	50	
AT	7704	EISENSTADT	16.53	47.85	184	1.49	50	
AT	5103	ENNS	14.48	48.22	260	1.70	47	
AT	15300	ENZINGERBODEN	12.62	47.17	1480	6.10	34	
AT	11115	FELDKIRCH	9.62	47.27	440	1.98	50	
AT	20200	FERLACH	14.30	46.53	470	3.91	37	
AT	6611	FEUERKOGEL	13.72	47.82	1618	12.30	50	
AT	1601	FREISTADT	14.50	48.52	548	1.66	50	
AT	18600	FRIESACH	14.42	46.95	634	2.33	37	
AT	6020	FUCHSENBIGL	16.73	48.18	149	1.18	42	
AT	16600	FUERSTENFELD	16.07	47.02	273	2.37	36	
AT	4801	GALLSPACH	13.82	48.20	400	1.89	31	
AT	17002	GALTUER	10.18	46.95	1648	8.05	50	
AT	16500	GLEISDORF	15.72	47.12	375	2.34	37	
AT	6620	GMUNDEN	13.78	47.92	424	2.72	50	

AT	16400	GRAZ-FLUGHAFEN	15.43	46.98	340	2.30	40	
AT	16412	GRAZ-UNIVERSITAET	15.45	47.08	366	1.99	43	
AT	5972	GROSSENZERSDORF	16.55	48.18	153	1.28	40	
AT	6910	GROSSRAMING	14.52	47.88	379	2.45	45	
AT	3600	GUTENBRUNN-MARTINSBERG	15.15	48.38	810	4.72	40	
AT	14600	HAIMING	10.85	47.25	695	2.81	32	
AT	9410	HALLEIN	13.10	47.68	450	2.97	36	
AT	10000	HIEFL AU	14.75	47.60	492	4.65	50	
AT	5000	HOERSCHING	14.18	48.23	297	1.39	42	
AT	2600	HOHEN AU/MARCH	16.90	48.62	155	1.36	50	
AT	11400	HOLZG AU	10.35	47.27	1100	6.60	50	
AT	14512	IMST	10.73	47.23	910	3.31	37	
AT	11804	INNSBRUCK-FLUGPLATZ	11.35	47.27	578	2.98	37	
AT	11803	INNSBRUCK-UNIVERSITAET	11.40	47.27	577	2.58	44	
AT	9811	IRDNING-GUMPENSTEIN	14.10	47.50	710	2.79	44	
AT	700	JAPONS	15.57	48.78	520	1.70	37	
AT	15343	KALS	12.65	47.00	1347	4.80	37	
AT	20100	KANZELHOEHE	13.90	46.68	1526	7.51	50	
AT	13610	KIRCHBERG-GRAFENDORF	15.98	47.35	452	1.84	34	
AT	9000	KIRCHBICHL	12.08	47.52	498	3.86	31	
AT	12200	KITZBUEHEL	12.40	47.45	763	4.70	35	
AT	20212	KLAGENFURT	14.33	46.65	447	2.70	48	
AT	3500	KOENIGSWIESEN	14.83	48.40	608	2.75	28	
AT	18100	KOLBNITZ	13.30	46.88	603	3.53	37	
AT	1400	KOLLERSCHLAG	13.83	48.60	725	4.95	50	
AT	19710	KORNAT	12.88	46.68	1037	7.13	50	
AT	3805	KREMS	15.62	48.42	207	1.06	49	
AT	5010	KREMSMUNSTER	14.13	48.05	383	2.37	50	
AT	9620	KRIIPPENSTEIN	13.70	47.52	2050	23.29	41	
AT	9010	KUFSTEIN	12.17	47.58	495	3.40	50	
AT	2400	LAA/THAYA	16.38	48.72	187	1.84	37	
AT	4900	LAMBACH	13.87	48.08	360	1.44	46	
AT	14403	LANDECK	10.58	47.15	785	2.82	50	
AT	14310	LANGEN AM ARLBERG	10.12	47.13	1218	10.73	45	
AT	4081	LANGENLEBARN	16.12	48.32	177	1.92	35	
AT	3811	LANGENLOIS	15.70	48.47	210	1.09	32	
AT	19020	LEIBNITZ	15.52	46.78	332	2.53	37	
AT	17901	LIENZ	12.80	46.83	659	4.78	50	
AT	3202	LINZ	14.28	48.30	263	1.31	50	
AT	500	LITSCH AU	15.03	48.95	564	3.03	37	
AT	18200	LITZLHOF	13.43	46.83	580	3.27	33	
AT	16300	LOBMING	15.18	47.05	400	2.50	37	
AT	21100	LOIBL-TUNNEL	14.25	46.45	1067	6.78	37	
AT	18110	MALLNITZ	13.17	46.97	1185	5.47	50	
AT	7200	MARIAZELL	15.32	47.77	875	5.41	50	
AT	6411	MATTSEE	13.10	47.97	508	3.30	37	
AT	15001	MAYRHOFEN	11.85	47.15	643	4.00	50	
AT	10500	MOENICHKIRCHEN	16.05	47.50	980	4.28	37	
AT	6510	MONDSEE	13.37	47.83	491	3.20	42	
AT	15310	MOOSERBODEN	12.72	47.17	2036	11.05	48	*
AT	10400	MUERZZUSCHLAG	15.68	47.60	755	3.44	50	
AT	17100	NAUDERS	10.50	46.90	1360	4.76	37	
AT	16015	NEUMARKT IN STEIERMARK	14.43	47.08	842	2.43	40	
AT	7905	NEUSIEDL AM SEE	16.85	47.93	129	1.71	50	
AT	17300	OBERGURGL	11.02	46.87	1938	8.72	45	
AT	2410	OBERLEIS	16.37	48.55	420	2.68	50	

AT	16900	OBERVERMUNT	10.08	46.92	2040	13.10	34	
AT	15900	OBERWOELZ	14.28	47.20	810	2.49	37	
AT	3410	PABNEUKIRCHEN	14.83	48.33	595	2.92	50	
AT	16910	PARTENEN	10.05	46.97	1028	7.48	34	
AT	14812	PATSCHERKOFEL	11.47	47.22	2247	10.67	50	
AT	2503	POYSDORF	16.63	48.67	208	1.61	32	
AT	18805	PREITENEGG	14.92	46.93	1035	4.10	37	
AT	14520	PRUTZ	10.67	47.07	870	3.05	30	
AT	7500	PUCHBERG AM SCHNEEBERG	15.90	47.78	580	2.59	37	
AT	18300	RADENTHEIN	13.70	46.78	685	2.47	39	
AT	12615	RADSTADT	13.45	47.38	845	4.73	37	
AT	4501	RANSHOFEN	13.03	48.22	382	1.57	33	
AT	15402	RAURIS	13.00	47.22	945	3.09	50	
AT	10510	REICHENAU AN DER RAX	15.83	47.70	486	2.02	50	
AT	2900	REICHERSBERG	13.37	48.33	350	1.51	49	
AT	19800	REISACH	13.15	46.65	646	6.06	37	
AT	901	RETZ	15.95	48.75	256	1.13	48	
AT	11505	REUTTE	10.75	47.50	870	4.70	37	
AT	4700	RIED IM INNKREIS	13.48	48.22	435	1.90	37	
AT	14820	RINN	11.48	47.23	900	2.27	37	
AT	1415	ROHRBACH	14.00	48.57	602	3.39	49	
AT	6300	SALZBURG-FLUGHAFEN	13.00	47.80	434	1.68	44	
AT	12310	SCHMITTENHOEHE	12.73	47.33	1973	15.98	45	
AT	16421	SCHOECKL	15.47	47.20	1445	6.16	48	
AT	11200	SCHOPPERNAU	10.02	47.30	835	6.59	50	
AT	11300	SCHROECKEN	10.08	47.27	1263	11.59	50	
AT	7400	SCHWARZAU IM GEBIRGE	15.87	47.80	612	3.88	37	
AT	1900	SCHWARZNAU	15.27	48.73	500	1.58	36	*
AT	5990	SCHWECHAT	16.57	48.12	178	1.79	45	
AT	13110	SECKAU	14.78	47.28	874	2.41	49	*
AT	11705	SEEFELD	11.17	47.33	1200	6.49	48	
AT	7710	SEIBERSDORF	16.50	47.97	185	1.61	33	
AT	10410	SEMMERING	15.82	47.62	1000	5.71	44	
AT	19505	SILLIAN	12.43	46.75	1075	7.09	37	
AT	15410	SONNBLICK	12.95	47.05	3105	35.82	50	
AT	18705	ST.ANDRAE IM LAVANTTAL	14.83	46.77	404	2.13	37	
AT	14300	ST.ANTON AM ARLBERG	10.27	47.13	1280	6.94	37	
AT	17700	ST.JAKOB IN DEFEREGGEN	12.35	46.92	1400	5.55	50	
AT	5604	ST.POELTEN	15.62	48.20	272	2.04	50	
AT	16411	ST.RADEGUND	15.48	47.18	725	2.80	37	
AT	18620	ST.VEIT AN DER GLAN	14.35	46.75	475	2.51	37	
AT	9511	ST.WOLFGANG	13.45	47.73	575	3.87	31	
AT	1920	STIFT ZWETTL	15.20	48.62	505	1.84	50	
AT	15910	STOLZALPE	14.20	47.12	1305	4.21	50	
AT	15710	TAMSWEG	13.80	47.12	1012	3.42	50	
AT	6900	TERNBERG	14.35	47.95	350	1.49	37	
AT	14630	UMHAUSEN	10.93	47.13	1036	2.95	37	
AT	12220	UTTENDORF	12.57	47.27	796	3.11	35	
AT	20123	VILLACH	13.87	46.62	493	3.41	50	
AT	20021	VILLACHERALPE	13.67	46.60	2140	12.12	49	*
AT	7011	Waidhofen/YBBS	14.77	47.97	365	2.48	37	
AT	3110	WAIZENKIRCHEN	13.87	48.33	370	1.94	50	
AT	19821	WEISSENSEE	13.28	46.72	945	5.16	37	
AT	1800	WEITRA	14.88	48.68	580	2.05	37	
AT	16520	WEIZ	15.63	47.22	465	2.05	37	
AT	20600	WIEL	15.12	46.73	900	4.82	37	

AT	5904	WIEN-HOHE WARTE	16.35	48.23	203	2.52	37	
AT	5805	WIEN-MARIABRUNN	16.23	48.20	226	1.62	50	
AT	9919	WINDISCHGARSTEN	14.33	47.73	600	5.20	35	
AT	16710	WOERTERBERG	16.08	47.22	400	1.79	50	
AT	4810	WOLFSEGG	13.67	48.10	660	3.13	37	
AT	7604	WR.NEUSTADT-FLUGPL.	16.22	47.83	285	1.67	36	
AT	12322	ZELL AM SEE	12.78	47.32	766	3.66	50	
AT	15011	ZELL AM ZILLER	11.92	47.23	585	3.36	33	
AT	16101	ZELTWEG	14.78	47.20	669	2.12	34	*
BE	458	BEAUVECHAIN	4.46	50.45	127	0.51	28	
BE	478	BIERSET	5.27	50.39	178	1.00	26	
BE	432	CHIEVRES	3.50	50.34	63	0.34	23	
BE	450	DEURNE	4.28	51.12	10	0.29	29	
BE	496	ELSENBORN	6.11	50.29	570	1.23	11	
BE	456	FLORENNES	4.39	50.14	299	0.94	30	
BE	449	GOSSELIES	4.27	50.28	193	0.41	12	
BE	479	KLEINE BROGEL	5.28	51.10	64	0.60	12	*
BE	400	KOKSIJDE	2.39	51.05	9	0.40	30	
BE	407	MIDDELKERKE	2.52	51.12	5	0.35	22	
BE	476	SAINT HUBERT	5.24	50.02	558	1.09	31	
BE	490	SPA	5.54	50.29	483	0.68	11	
BE	451	ZAVENTEM	4.32	50.54	39	0.37	30	
CH	6780	Aarau	8.05	47.37	408	0.96	20	
CH	5270	Adelboden	7.57	46.45	1355	5.75	25	
CH	6520	Affortern i.E.	7.73	47.03	802	2.57	17	
CH	9030	Airolo	8.60	46.53	1149	5.92	20	
CH	4140	Altdorf	8.67	46.85	451	0.84	32	
CH	0920	Altstätten	9.53	47.38	465	0.98	30	
CH	0510	Alvaneu	9.65	46.68	1175	2.09	19	
CH	2AN	Andermatt	8.60	46.63	1440	9.69	51	
CH	4AO	Arolla	7.48	46.03	1890	6.80	9	
CH	5AR	Arosa	9.68	46.78	1740	7.89	17	
CH	0780	Bad Ragaz	9.50	47.02	496	1.84	32	
CH	6570	Balmberg	7.55	47.27	1075	3.22	17	
CH	4BB	Barberine	6.93	46.07	1820	13.65	27	
CH	1940	Basel	7.57	47.50	316	0.56	60	
CH	6BO	Bedretto	8.52	46.50	1400	10.75	29	
CH	5520	Bern	7.40	46.88	570	0.88	60	
CH	9610	Bernina (-Hospiz)	10.02	46.42	2256	17.62	19	
CH	9850	Bever	9.97	46.55	1712	5.79	51	
CH	6970	Beznau	8.23	47.55	327	0.80	22	
CH	6370	Bienne	7.27	47.13	434	0.81	31	
CH	5BI	Bivio	9.65	46.47	1770	5.84	34	
CH	6090	Boschuz	6.52	46.73	437	0.48	18	
CH	9340	Bosco-Gurin	8.50	46.32	1510	10.84	20	
CH	6940	Bötzberg	8.15	47.48	514	1.21	15	
CH	4BP	Bourg St. Pierre	7.22	45.95	1610	5.05	45	
CH	3BR	Braunwald	8.98	46.93	1340	12.07	37	
CH	5670	Broc	7.12	46.62	680	1.27	20	
CH	9870	Buffalora (Ofenpass)	10.27	46.65	1968	6.09	19	
CH	5BU	Büschalp	9.77	46.82	1960	8.61	51	
CH	6CA	Cardada	8.78	46.20	1650	10.37	16	
CH	5610	Château-d'Oex	7.12	46.47	956	2.78	50	
CH	6350	Chaumont	6.98	47.05	1141	4.77	20	
CH	0640	Chur	8.57	46.83	586	1.75	32	
CH	9090	Comprovasco	8.93	46.45	552	1.23	20	

CH	7CO	Corvatsch	9.82	46.43	2270	7.70	20	
CH	5DF	Davos	9.85	46.82	1560	5.59	51	
CH	1800	Delémont	7.35	47.37	416	0.67	31	
CH	5DI	Disentis	8.85	46.70	1190	4.60	31	
CH	2060	Ebnat-Kappel	9.12	47.27	629	2.14	25	
CH	3800	Einsiedeln	8.75	47.13	914	3.87	60	
CH	3180	Elm	9.17	46.92	962	5.01	25	
CH	4410	Engelberg	8.43	46.78	1018	3.62	60	
CH	3980	Ennetbaden	8.32	47.48	420	0.76	16	
CH	8640	Fahy	6.95	47.43	596	1.14	21	
CH	7570	Fey (Nendaz)	7.27	46.18	780	1.39	16	
CH	4FY	Fionnay	7.30	46.03	1500	8.73	26	
CH	3FB	Flumserberg	9.30	47.05	1310	10.95	26	
CH	2600	Frauenfeld	8.88	47.55	403	0.66	16	
CH	5740	Fribourg	7.12	46.77	634	0.58	26	
CH	7FA	Ftan	10.25	46.80	1710	4.52	22	
CH	6FU	Fusio	8.67	46.45	1280	7.90	8	
CH	1GT	Gantrisch	7.43	46.72	1510	7.61	18	
CH	8440	Genève-Cointrin	6.13	46.25	430	0.50	60	
CH	3210	Glarus	9.10	47.03	470	2.92	30	
CH	4080	Göschenen	8.58	46.67	1111	7.05	23	
CH	2GA	Göscheneralp	8.50	46.65	1750	10.91	9	
CH	7220	Grächen	7.83	46.20	1617	4.07	20	
CH	4GR	Grimenz	7.58	46.18	1570	5.43	9	
CH	5010	Grimsel	8.33	46.57	1950	22.33	27	
CH	1GB	Grindelwald-Bort	8.05	46.65	1570	8.54	43	
CH	9200	Grono	9.15	46.25	357	1.81	20	
CH	1GS	Gsteig	7.27	46.22	1195	4.80	9	
CH	4020	Gütsch	8.63	46.62	2288	20.91	20	
CH	5030	Guttannen	8.30	46.65	1055	6.28	27	
CH	1080	Güttingen	9.22	47.57	438	0.70	15	
CH	1150	Haidenhaus	9.02	47.65	694	1.22	27	
CH	1430	Hallau	8.47	47.70	450	0.80	27	
CH	1HB	Hasliberg	8.22	46.77	1830	17.44	24	
CH	0980	Heiden	9.53	47.45	811	1.90	32	
CH	0280	Hinterrhein	9.17	46.48	1619	9.63	20	
CH	6600	Huttwil	7.85	47.12	639	1.29	20	
CH	5IN	Innerferrera	9.43	46.53	1470	3.42	32	
CH	5190	Interlaken	7.88	46.63	574	1.35	32	
CH	5KK	Klosters	9.88	46.87	1200	7.34	49	
CH	2940	Kloten	8.50	47.43	431	0.68	20	
CH	1110	Kreuzlingen	9.17	47.65	446	0.89	35	
CH	4KU	Kühboden	8.10	46.42	2210	10.94	9	
CH	6300	La Brévine	6.60	46.98	1042	5.07	20	
CH	8545	La Chaux-de-Fonds	6.80	47.08	1018	3.99	59	
CH	8280	La Dôle	6.12	46.42	1672	9.54	18	
CH	7LD	La Drossa	10.18	46.65	1710	4.89	34	
CH	6710	Langenbruck	7.77	47.35	740	2.32	28	
CH	6480	Langnau i.E.	7.80	46.93	692	1.55	32	
CH	8130	Lausanne	6.65	46.53	618	0.57	20	
CH	1780	Les Rangiers	7.22	47.38	856	1.76	20	
CH	1LS	Leysin	7.00	46.35	1250	5.92	31	
CH	3120	Linthal	8.95	46.87	812	5.55	22	
CH	9745	Löbbia	9.67	46.38	1420	6.16	15	
CH	9400	Locarno-Monti	8.83	46.13	366	1.12	48	
CH	1260	Lohn SH	8.67	47.75	623	1.25	19	



CH	9480	Lugano	8.97	46.00	275	0.92	60	
CH	4590	Luzern	8.28	47.02	456	0.97	32	
CH	3MB	Malbun	9.62	47.10	1610	7.87	24	
CH	7MA	Maloja	9.70	46.40	1800	8.69	44	
CH	4MV	Mauvoisin	7.35	46.00	1840	11.81	26	
CH	5070	Meiringen	8.20	46.73	632	2.05	32	
CH	4660	Menzberg	8.00	47.03	1035	1.73	17	
CH	1MN	Moléson	7.02	46.55	1520	12.38	23	
CH	6390	Mont Soleil	7.00	47.17	1180	7.25	22	
CH	4MO	Montana	7.47	46.30	1590	6.46	20	
CH	9460	Monte Bré	8.98	46.02	910	4.34	16	
CH	8020	Montreux	6.90	46.45	405	0.50	40	
CH	1MI	Morgins	6.85	46.23	1380	8.75	34	
CH	7MT	Motta Naluns	10.27	46.85	2150	7.00	10	
CH	4MS	Münster	8.27	46.48	1410	7.77	44	
CH	1MR	Mürren	7.88	46.55	1660	7.23	48	
CH	6NT	Nante	8.62	46.52	1420	6.30	14	
CH	6340	Neuchâtel	6.93	46.95	485	0.67	60	
CH	3760	Oberiberg	8.78	47.03	1090	6.30	27	
CH	5OB	Obersaxen	9.10	46.92	1420	4.89	15	
CH	6580	Oeschberg	7.62	47.13	482	0.81	30	
CH	6750	Olten	7.90	47.35	413	0.87	26	
CH	5769	Plaffeien	7.30	46.73	850	1.61	18	
CH	7PO	Pontresina	9.90	46.50	1840	4.13	8	
CH	3500	Rapperswil	8.83	47.22	410	0.75	20	
CH	7050	Reckingen (Goms)	8.25	46.47	1325	6.75	17	
CH	1560	Rheinfelden	7.78	47.55	261	0.65	29	
CH	7270	Ried/Lötschental	7.80	46.42	1480	6.15	17	
CH	2RI	Rigi	8.47	47.05	1640	9.82	36	
CH	4305	Rigi Kulm	8.50	47.03	1794	3.21	27	
CH	9670	Robbia	10.07	46.35	1078	2.99	30	
CH	6RO	Robiei	8.52	46.45	1890	22.92	23	
CH	1010	Rorschach	9.50	47.48	420	0.81	15	
CH	5RU	Rumein	9.17	46.72	1200	2.76	14	
CH	5590	Saanen	7.25	46.48	1008	3.96	15	
CH	1SM	Saanenmöser	7.30	46.53	1390	5.95	9	
CH	7160	Saas Almagell	7.95	46.10	1680	5.76	20	
CH	4SF	Saas Fee	7.93	46.10	1790	5.08	26	
CH	7SN	Samnaun	10.37	46.95	1710	4.38	9	
CH	6SB	San Bernardino	9.20	46.47	1630	8.69	25	
CH	2220	Säntis	9.37	47.22	2500	30.00	60	
CH	4560	Sarnen	8.25	46.90	479	0.78	22	
CH	1300	Schaffhausen	8.63	47.65	457	0.85	31	
CH	0700	Schiers	9.68	46.98	682	4.01	24	
CH	3SW	Schwägalp	9.32	47.25	1290	12.32	26	
CH	4270	Schwyz	8.63	47.02	448	1.25	20	
CH	9930	Scuol	10.33	46.77	1295	3.30	32	
CH	5SE	Sedrun	8.77	46.68	1420	6.17	32	
CH	5SI	Siat	9.17	46.80	1280	5.98	17	
CH	9810	Sils (-Maria)	9.77	46.43	1802	7.74	20	
CH	9580	Simplon	8.05	46.20	1470	8.51	20	
CH	7500	Sion	7.37	46.23	542	1.14	47	
CH	5SP	Splügen	9.32	46.55	1450	5.49	37	
CH	5SA	St. Antönien	9.82	46.97	1510	8.84	45	
CH	1030	St. Gallen	9.33	47.40	664	1.40	32	
CH	9010	St. Gotthard	8.60	46.50	1510	16.73	39	

CH	7ST	St. Maria	10.43	46.60	1400	3.17	30	
CH	9830	St. Moritz	9.83	46.53	1832	4.77	23	
CH	2300	Stein App.	9.37	47.35	786	1.63	25	
CH	1SH	Stockhorn	7.53	46.70	1650	13.66	23	
CH	2ST	Stoos	8.67	46.98	1280	10.29	43	
CH	2510	Tänikon	8.92	47.45	536	0.84	20	
CH	2TR	Trübsee	8.40	46.80	1770	15.85	44	
CH	3880	Uetliberg	8.48	47.35	810	1.80	20	
CH	4UL	Ulrichen	8.30	46.52	1350	9.44	34	
CH	6060	Vallorbe	6.38	46.70	762	1.26	14	
CH	0760	Vättis	9.43	46.90	948	4.23	25	
CH	7775	Vernayaz	7.03	46.13	453	0.51	15	
CH	9750	Vicosoprano	9.62	46.35	1065	7.57	20	
CH	5WJ	Weissfluhjoch	9.82	46.83	2540	14.70	61	
CH	1WE	Wengen	7.92	46.62	1310	4.51	10	
CH	4WI	Wiler	7.78	46.40	1400	5.89	24	
CH	2790	Winterthur	8.77	47.48	495	0.95	19	
CH	4ZE	Zermatt	7.75	46.02	1600	5.13	49	
CH	5ZV	Zervreila	9.12	46.58	1735	7.13	35	
CH	4810	Zugerberg	8.53	47.12	975	2.30	17	
CH	7ZU	Zuoz	9.97	46.60	1710	4.37	43	
CH	3700	Zürich SMA	8.53	47.33	556	0.87	60	
DE	2205	AACHEN (WST)	6.10	50.78	202	0.75	33	
DE	70111	ACHBERG-DOBERATSWEILER	9.70	47.60	503	1.32	30	
DE	56019	ACHIM	9.05	53.02	28	1.02	31	
DE	71151	ADELBERG	9.60	48.77	474	1.30	24	
DE	71038	ALBSTADT-BURGFELDEN	8.93	48.23	911	1.41	20	
DE	51409	ALSFELD-REIBERTENROD	9.25	50.77	269	0.62	27	
DE	73312	ALTDORF	11.37	49.38	423	1.05	26	
DE	71329	ALTHENGSTETT-OTTENBRONN	8.75	48.73	530	1.45	31	
DE	3058	ANGERMUENDE (WST)	14.00	53.03	56	0.88	44	
DE	1536	ANNATURM	9.50	52.25	395	2.29	14	
DE	3005	ARKONA (WST)	13.43	54.68	42	0.63	43	*
DE	1585	ARNSBERG	8.07	51.38	218	1.06	33	
DE	92431	ASCHAU	12.32	47.77	620	3.79	31	
DE	78796	ATTENDORN	7.92	51.12	307	1.04	28	
DE	73366	AUFSESS-HOCHSTAHL	11.27	49.88	435	0.95	20	
DE	4128	AUGSBURG-MUEHLH.(WST)	10.93	48.43	461	1.11	34	
DE	60105	AUGUSTDORF	8.73	51.90	163	1.06	21	
DE	2764	AULENDORF-SPIEGLER	9.67	47.97	560	1.33	16	
DE	4064	BAMBERG (WST)	10.92	49.88	239	0.75	23	
DE	90347	BARTHOLOMAE	10.00	48.75	642	2.06	10	
DE	91301	BAYERISCH EISENSTEIN	13.20	49.12	710	4.04	18	
DE	4070	BAYREUTH	11.55	49.95	330	0.60	33	
DE	1473	BEDERKESA	8.83	53.63	27	0.81	17	*
DE	2667	BEERFELDEN	8.97	49.57	450	1.51	33	
DE	92054	BENEDIKTBEUERN	11.42	47.70	630	2.41	29	
DE	4536	BERCHTESGADEN	13.02	47.63	550	3.25	26	
DE	51217	BERLEBURG,BAD-GIRKHAUSEN	8.45	51.12	510	2.06	29	
DE	51213	BERLEBURG,BAD-WINGESHS.	8.28	51.07	450	1.91	31	
DE	51229	BERLEBURG,BAD-WUNDERTHS.	8.52	51.10	543	3.01	31	
DE	51220	BERLEBURG,BAD (NST)	8.38	51.07	470	2.09	31	
DE	3319	BERLIN-DAHLEM (MET.INST)	13.30	52.47	51	1.00	32	
DE	46571	BERLIN-LICHTERFELDE OST	13.33	52.42	45	1.07	30	
DE	3312	BERLIN-ZEHLENDORF	13.23	52.43	45	1.34	17	
DE	2110	BERUS (WST)	6.68	49.27	363	0.94	23	

DE	73729	BISCHOFSCHEIM/RHOEN	10.00	50.40	465	1.05	10	
DE	90302	BLAUBEUREN-SEISSEN	9.75	48.42	701	1.79	11	
DE	91463	BOGEN-PFELLING	12.75	48.88	345	1.16	29	
DE	1083	BORKUM	6.75	53.57	5	0.67	25	
DE	3984	BRAUNLAGE (WST)	10.60	51.73	607	5.44	33	
DE	3916	BRAUNSCHWEIG-VOELK.(WST)	10.45	52.30	81	0.87	23	
DE	1474	BREMEN (FLUGWEWA)	8.80	53.05	4	0.59	31	*
DE	52119	BRILON-BONTKIRCHEN	8.65	51.35	435	1.45	23	
DE	2282	BRUECKEN	7.12	49.63	390	1.04	33	
DE	2685	BUCHEN,KR.NECKAR-ODW.	9.32	49.52	350	0.99	31	
DE	90262	BUCHENBERG	10.23	47.70	898	5.12	29	
DE	90712	BURK-MEIERN DORF	10.50	49.15	436	1.18	18	
DE	4412	CHEMNITZ (WST)	12.87	50.80	418	1.44	44	
DE	1511	CLOPPENBURG	8.07	52.85	42	0.96	12	
DE	4040	COBURG (WST)	10.98	50.28	322	0.89	33	
DE	1478	CUXHAVEN (WST)	8.70	53.87	5	0.66	30	*
DE	80127	DAHLEM-SCHMIDTHEIM	6.55	50.42	565	1.42	30	
DE	2662	DARMSTADT (WST)	8.60	49.85	108	0.77	32	
DE	90771	DASSWANG	11.67	49.15	521	1.28	21	
DE	90743	DENKENDORF	11.45	48.92	518	0.64	10	
DE	2278	DEUSELBACH (WST)	7.05	49.77	408	1.41	23	
DE	1519	DIEPHOLZ (WST)	8.35	52.58	39	0.80	22	
DE	3360	DOBERLUG-KIRCHHAIN (WST)	13.58	51.65	97	0.92	34	
DE	1192	DUESSELDORF (FLUGWEWA)	6.77	51.30	37	0.46	13	
DE	4058	EBRACH	10.48	49.85	360	1.21	19	
DE	51342	EDERTAL-EDERSEE	9.07	51.18	250	0.62	27	
DE	73419	EGLOFFSTEIN-BIEBERBACH	11.30	49.73	510	1.69	31	
DE	4108	EICHSTAETT	11.17	48.90	397	0.84	16	
DE	3216	EISLEBEN-HELFTA	11.57	51.50	146	0.90	23	
DE	4100	ELLWANGEN/JAGST	10.13	48.97	443	1.36	33	
DE	92457	ENGELSBURG	12.55	48.12	500	1.39	27	
DE	2691	EPPINGEN	8.92	49.13	210	0.68	32	
DE	92127	ERESING (ST.OTILIIEN)	11.05	48.10	590	1.16	23	
DE	4200	ERFURT-BIND. (FLUGWEWA)	10.97	50.98	316	0.95	44	
DE	51206	ERNDTEBRUECK	8.25	51.00	500	2.42	30	
DE	74039	ESCHAU-WILDENSEE	9.35	49.83	378	0.74	31	
DE	1190	ESSEN-BREDENEY (WST)	6.97	51.40	152	0.69	33	
DE	90625	EURASBURG-FREIENRIED	11.13	48.33	529	1.14	31	
DE	4029	FICHELTEL./OFR-HUETTSTADL	11.83	49.98	659	4.20	32	
DE	4428	FICHELTELBERG (WST)	12.95	50.43	1213	9.47	44	
DE	51321	FRANKENAU	8.93	51.10	420	1.10	31	
DE	2641	FRANKFURT/M-FELDBERGSTR	8.67	50.12	103	0.75	11	
DE	2560	FRANKFURT/M.(STADT)	8.68	50.15	125	0.65	21	
DE	91223	FREUDENBERG-WUTSCHDORF	11.98	49.48	500	1.11	26	
DE	70510	FREUDENSTADT-KNIEBIS	8.32	48.47	875	6.20	31	
DE	2751	FREUDENSTADT (WST)	8.42	48.45	795	5.24	31	
DE	4156	GARMISCH-PARTENK. (WST)	11.07	47.48	719	3.35	33	
DE	92221	GEISENHAUSEN	12.27	48.48	467	0.91	31	
DE	2240	GEISENHEIM (AMBF)	7.95	49.98	118	0.48	32	
DE	60429	GEORGSMARIENHUETTE	8.07	52.20	133	0.57	28	
DE	90592	GERSTHOFEN	10.88	48.45	455	0.66	31	
DE	73367	GLASHUETTEN,KR.BAYREUTH	11.45	49.88	423	1.25	16	
DE	71147	GOEPPINGEN-FAURNDAU	9.62	48.72	361	0.89	28	
DE	90556	GOERISRIED	10.52	47.70	795	2.56	30	
DE	3380	GOERLITZ (WST)	14.95	51.17	238	0.97	44	
DE	4068	GOESSWEINSTEIN	11.33	49.77	450	1.39	31	

DE	1564	GOETTINGEN (WST)	9.95	51.50	167	0.74	33	
DE	73334	GRAEFENBERG	11.25	49.65	477	1.67	18	
DE	3016	GRAIFSWALD (WST)	13.40	54.10	2	1.45	17	
DE	4514	GRAINET-REHBERG	13.62	48.80	655	4.04	26	
DE	71738	GRASELLENBACH-SCHARBACH	8.82	49.62	522	1.70	15	
DE	2633	GREBENHAIN-HERCHENHAIN	9.27	50.48	608	3.15	25	
DE	73021	GREUSSEN	11.62	49.85	440	1.02	30	
DE	4491	GROSSER FALKENSTEIN (WST)	13.28	49.08	1307	9.84	32	
DE	2723	GSCHWEND,KR.OSTALB	9.73	48.93	492	1.73	33	
DE	3218	HALLE-STADT	11.98	51.48	104	0.71	21	
DE	51269	HALLENBERG	8.63	51.12	417	2.15	17	
DE	1459	HAMBURG-FUHLS (FLUGWEWA)	10.00	53.63	13	0.71	32	*
DE	54936	HANNOVER-HERRENHAUSEN	9.67	52.40	50	0.67	31	
DE	1538	HANNOVER-LANG. (FLUGWEWA)	9.68	52.47	55	0.61	32	*
DE	73211	HAUNDORF-OBERERLBACH	10.83	49.18	410	0.97	20	
DE	71767	HEIDELBERG (KOENIGSTUHL)	8.73	49.40	561	1.72	19	
DE	73413	HEILIGENSTADT	11.17	49.87	400	1.16	31	
DE	73408	HEILIGENSTADT-HOHENPOELZ	11.15	49.92	500	1.35	20	
DE	1040	HELGOLAND (WST)	7.90	54.18	4	0.43	9	
DE	43029	HELMBRECHTS	11.73	50.23	585	2.69	31	
DE	3915	HELMSTEDT	11.02	52.22	140	1.28	32	
DE	48537	HENSTEDT-ULZBURG	10.02	53.78	40	0.78	11	
DE	1524	HERFORD	8.68	52.13	77	0.87	32	
DE	2621	HERSFELD,BAD (WST)	9.73	50.85	273	0.82	31	
DE	51524	HESS.LICHTENAU	9.73	51.20	384	1.12	11	
DE	71341	HILDRIZHAUSEN	8.97	48.63	483	1.10	21	
DE	90245	HINDELANG-OBERDORF,BAD	10.38	47.50	850	3.71	31	
DE	92501	HINTERSEE	12.85	47.60	804	3.29	14	
DE	74059	HOECHST/ODW.-HUMMETROTH	8.93	49.78	340	0.72	29	
DE	4027	HOF-HOHENSAAS (WST)	11.88	50.32	567	1.52	33	
DE	52236	HOFGEISMAR-HOMBRESSEN	9.48	51.48	242	1.09	15	
DE	40153	HOHENBERG/EGER	12.23	50.10	505	1.36	11	
DE	4161	HOHENPEISSENBERG (OBS)	11.02	47.80	977	2.94	33	
DE	73365	HOLLFELD	11.30	49.93	423	0.96	18	
DE	1435	HUSUM	9.05	54.47	3	0.77	24	
DE	90290	ILLERTISSEN	10.12	48.23	512	0.99	20	
DE	90613	INGOLSTADT	11.43	48.75	367	0.73	20	
DE	92445	INZELL	12.75	47.77	690	4.20	22	
DE	92387	ISEN	12.05	48.20	510	1.22	29	
DE	4138	ISNY	10.05	47.68	712	4.38	33	
DE	90285	JEDESHEIM	10.12	48.20	518	0.82	11	
DE	4204	JENA (STERNWARTE)	11.58	50.93	155	0.74	71	
DE	48509	JESTEBURG	9.95	53.30	28	0.86	10	
DE	90341	JETTINGEN-SCHEPPACH	10.43	48.38	470	0.81	30	
DE	1065	JEVER (BW)	7.90	53.53	7	0.67	24	
DE	1594	KAHLER ASTEN (WST)	8.48	51.18	839	6.62	29	
DE	2698	KARLSRUHE (WST)	8.37	49.03	112	0.62	32	
DE	1576	KASSEL (WST)	9.45	51.30	231	0.80	32	
DE	4137	KEMPTEN (WST)	10.33	47.72	705	2.37	32	
DE	3810	KIEL-KRONSHAGEN (WST)	10.10	54.33	17	0.71	32	*
DE	92266	KIRCHDORF IM WALD	13.27	48.92	693	3.02	27	
DE	4052	KISSINGEN,BAD (WST)	10.08	50.20	262	0.72	33	
DE	2648	KL.FELDBERG/TS. (WST)	8.45	50.22	805	3.50	33	
DE	73058	KLEINTETTAU	11.28	50.48	680	4.39	20	
DE	92014	KOCHEL-URFELD	11.35	47.62	802	3.59	24	
DE	2222	KOELN-WAHN (FLUGWEWA)	7.17	50.87	92	0.61	23	

DE	2221	KOELN (BOTAN.GARTEN)	6.97	50.97	45	0.52	30	
DE	51309	KORBACH-RHENA	8.80	51.28	458	1.55	20	
DE	92323	KREUTH-GLASHUETTE	11.65	47.62	895	5.91	28	
DE	78017	KREUZTAL-EICHEN	7.97	50.98	305	1.20	31	
DE	4036	KRONACH	11.33	50.23	306	0.90	33	
DE	92002	KRUEN	11.28	47.50	875	2.88	30	
DE	73947	KUELSHEIM/BADEN	9.52	49.68	300	0.75	21	
DE	4506	KUMHAUSEN	12.15	48.52	436	0.77	17	
DE	2729	LAICHINGEN	9.70	48.50	747	1.85	31	
DE	2678	LAUDA-KOEN.-GERLACHSHEIM	9.72	49.58	199	0.41	33	
DE	71201	LAUTERBURG	9.98	48.78	676	3.47	17	
DE	51402	LAUTERTAL-MEICHES	9.25	50.62	466	1.26	31	
DE	90516	LECHBRUCK	10.80	47.70	730	2.19	31	
DE	3400	LEINEFELDE (WST)	10.32	51.40	356	0.90	30	
DE	3375	LEIPZIG	12.42	51.32	141	0.93	35	
DE	92007	LENGGRIES-FALL	11.53	47.57	770	4.65	25	
DE	2717	LENNINGEN-SCHOPFLOCH	9.53	48.53	758	2.70	33	
DE	51315	LICHTENFELS-RHADERN	8.80	51.17	422	1.31	29	
DE	2646	LIMBURG/LAHN-OFFHEIM	8.07	50.42	185	0.59	22	
DE	3346	LINDENBERG (OBS)	14.12	52.22	98	0.88	44	
DE	1132	LINGEN (WST)	7.30	52.52	24	0.58	32	
DE	1543	LIPPSPRINGE,BAD (WST)	8.83	51.78	157	0.84	12	
DE	1402	LIST AUF SYLT (WST)	8.42	55.02	26	0.88	30	
DE	91184	LOHMA	12.42	49.62	500	1.53	31	
DE	90353	LONSEE-ETTLENSCHIESS	9.93	48.57	665	1.60	25	
DE	73158	LUDWAG	11.08	49.95	540	1.19	29	
DE	3877	LUEBECK (WST)	10.70	53.88	8	1.00	33	
DE	3901	LUECHOW (WST)	11.13	52.97	17	0.82	29	
DE	1168	LUEDENSCHIED	7.63	51.22	444	1.69	33	
DE	3891	LUENEBURG	10.43	53.27	11	0.88	33	
DE	3177	MAGDEBURG (WST)	11.60	52.13	79	0.84	48	
DE	2265	MANDERSCHIED/EIFEL	6.80	50.10	403	0.89	21	
DE	2695	MANNHEIM (WST)	8.55	49.52	96	0.51	32	
DE	2611	MARBURG-WEHRDA	8.77	50.83	186	0.86	33	
DE	2249	MARIENBERG,BAD (WST)	7.97	50.67	547	2.61	21	
DE	78143	MARIENHEIDE-MUELLENBACH	7.58	51.07	385	4.00	24	
DE	3050	MARNITZ (WST)	11.93	53.32	81	0.75	31	
DE	52122	MARSBERG-HELMINGHAUSEN	8.72	51.38	377	1.46	31	
DE	70612	MARXZELL-SCHIELBERG	8.45	48.85	434	1.12	28	
DE	51306	MEDEBACH-KUESTELBERG	8.60	51.23	660	3.30	28	
DE	1553	MEINBERG,BAD	8.98	51.90	214	1.08	28	
DE	78840	MEINERZHAGEN (NST)	7.65	51.10	431	2.11	31	
DE	73721	MELLRICHSTADT-MUEHLFELD	10.35	50.45	308	0.72	27	
DE	90332	MINDELHEIM	10.50	48.05	607	1.01	31	
DE	80121	MONSCHAU	6.23	50.57	509	1.85	31	
DE	80115	MONSCHAU-KALTERHERBERG	6.22	50.52	530	2.08	22	
DE	74002	MUDAU-SCHLOSSAU	9.15	49.55	470	1.59	31	
DE	4528	MUEHLDFORF/INN (WST)	12.50	48.28	405	1.26	31	
DE	4119	MUENCHEN-RIEM (FLUGWEWA)	11.72	48.13	527	1.28	32	
DE	2753	MUENSINGEN-APFELSTETTEN	9.48	48.38	750	1.92	33	
DE	1153	MUENSTER	7.58	51.95	62	0.77	23	
DE	2721	MURRHARDT	9.57	48.97	344	1.13	33	
DE	90360	NERESHEIM-ELCHINGEN	10.27	48.78	594	1.00	24	
DE	73269	NEUHAUS/MFR.-MOSENBERG	11.57	49.67	393	1.19	30	
DE	2618	NEUKIRCHEN-HAUPTSCHWENDA	9.40	50.90	500	1.51	33	
DE	73233	NEUMARKT/OPF.	11.43	49.28	426	0.93	11	

DE	1449	NEUMUENSTER	9.98	54.08	26	0.89	20	
DE	92273	NEUSCHOENAU-ALTSCHOENAU	13.47	48.92	730	4.06	22	
DE	4090	NEUSTADT/AISCH	10.60	49.60	315	0.72	33	
DE	4104	NIEDERSTOTZINGEN	10.23	48.53	451	2.37	28	
DE	32140	NORDEN	7.22	53.60	2	0.39	11	*
DE	1055	NORDERNEY (WST)	7.15	53.72	11	0.84	17	*
DE	73046	NORDHALBEN	11.50	50.38	621	3.07	16	
DE	2252	NUERBURG (WST)	6.95	50.33	627	2.11	23	
DE	4081	NUERNBERG-KRA.(FLUGWEWA)	11.05	49.50	314	0.68	28	
DE	4549	OBERAUDORF	12.18	47.65	480	3.50	33	
DE	73201	OBERDACHSTETTEN	10.43	49.42	430	0.88	30	
DE	90315	OBERGUENZBURG	10.42	47.85	738	2.63	31	
DE	90251	OBERSTAUFEN-THALKIRCHDF.	10.08	47.55	745	3.68	23	
DE	4144	OBERSTDORF (WST)	10.28	47.40	810	5.49	33	
DE	73418	OBERTRUBACH	11.35	49.70	435	0.83	12	
DE	4033	OCHSENKOPF	11.80	50.03	1019	10.00	22	
DE	2684	OEHRINGEN (WST)	9.52	49.22	276	0.71	32	
DE	2543	OFFENBACH/M.(STADT)	8.77	50.10	110	0.63	19	
DE	1516	OSNABRUECK (WST)	8.05	52.25	95	0.86	25	
DE	56152	OTTERSBERG-OTTERSTEDT	9.15	53.13	20	0.56	18	
DE	4517	PASSAU-OBERHAUS (WST)	13.47	48.58	409	1.20	33	
DE	73401	PEGNITZ-TROCKAU	11.50	49.83	535	1.17	21	
DE	92614	PFARRKIRCHEN	12.97	48.43	375	1.17	30	
DE	91421	PFEFFENHAUSEN-LUDMANNSD.	11.90	48.70	470	0.90	31	
DE	4426	PLAUEN (MNS)	12.13	50.48	386	1.09	34	
DE	73274	PLECH	11.47	49.65	440	1.14	31	
DE	90724	POLSINGEN-DOECKINGEN	10.77	48.93	510	1.32	31	
DE	3342	POTSDAM (OBS)	13.07	52.38	81	0.92	101	*
DE	73403	POTTENSTEIN	11.42	49.77	365	0.81	25	
DE	1454	QUICKBORN	9.90	53.73	27	0.91	22	
DE	1463	QUICKBORN (AWST)	9.88	53.73	13	0.32	4	
DE	73823	RECHTENBACH	9.50	49.98	360	0.99	31	
DE	4499	REGENSBURG (WST)	12.10	49.05	366	0.82	33	
DE	91394	REGENSTAUF	12.12	49.13	346	0.67	31	
DE	90725	REHLINGEN	10.88	48.92	457	0.74	18	
DE	4535	REICHENHALL,BAD	12.90	47.75	455	2.43	31	
DE	92331	REISACH	11.82	47.82	634	2.66	14	
DE	4540	REIT I.WINKL	12.47	47.68	690	6.72	33	
DE	73728	RHOENHAUS	9.98	50.43	736	5.46	8	
DE	92294	ROEHRNBACH	13.50	48.75	480	2.91	30	
DE	3014	ROSTOK-WARNEMUENDE (WST)	12.08	54.18	4	1.07	44	
DE	4093	ROTHENBURG O.D.TAUBER	10.18	49.38	406	0.74	28	
DE	78631	RUETHEN	8.45	51.50	330	1.04	30	
DE	4511	RUSEL-IRLMOOS	13.05	48.88	797	6.19	18	
DE	3988	SACHSA,BAD	10.55	51.60	335	1.81	27	
DE	1525	SALZUFLEN,BAD (WST)	8.75	52.10	135	0.97	33	
DE	2629	SANDBERG-KILIANSHOF	10.02	50.37	555	1.85	17	
DE	54523	SANKT ANDREASBERG	10.50	51.72	680	5.85	7	
DE	90662	SCHEYERN	11.45	48.50	481	1.14	31	
DE	80151	SCHLEIDEN-SCHOENESEIFFEN	6.40	50.52	572	1.55	16	
DE	1438	SCHLESWIG	9.55	54.53	43	0.93	32	*
DE	1437	SCHLESWIG-STADTFELD	9.58	54.52	19	0.76	21	
DE	92332	SCHLIRSEE (NST)	11.87	47.73	792	3.03	23	
DE	74123	SCHLUECHTERN	9.52	50.33	209	0.73	10	
DE	2639	SCHLUECHTERN-KLO.-GOMFR.	9.55	50.38	375	1.41	30	
DE	78731	SCHMALLENBERG-FLECKENBG.	8.27	51.13	364	1.61	30	

DE	2251	SCHNEIFELFORSTHAUS	6.42	50.30	657	2.35	23	
DE	71759	SCHOENBRUNN/BADEN	8.93	49.42	350	1.26	25	
DE	2634	SCHOTTEN	9.13	50.50	315	1.00	33	
DE	70411	SCHRAMBERG	8.38	48.22	502	1.78	30	
DE	73922	SCHROZBERG	9.98	49.35	455	1.06	31	
DE	71543	SCHWAEB.HALL-TEURERSHOF	9.72	49.12	365	0.58	31	
DE	76343	SCHWALBACH,BAD	8.07	50.13	320	0.94	31	
DE	4483	SCHWANDORF	12.12	49.33	372	0.74	11	
DE	90507	SCHWANGAU-NEUSCHWANSTEIN	10.75	47.57	1008	3.14	31	
DE	3038	SCHWERIN (WST)	11.38	53.65	59	0.72	91	*
DE	92421	SIEGSDORF-MARIA ECK	12.62	47.80	828	4.26	25	
DE	71316	SIMMERSFELD	8.52	48.62	720	2.63	27	
DE	1529	SOLTAU (WST)	9.83	53.00	77	0.75	24	*
DE	4246	SONNEBERG-NEUFANG	11.18	50.38	626	3.25	33	
DE	71067	SONNENBUEHL-GENKINGEN	9.18	48.40	780	1.80	31	
DE	2728	STOETTEN (WST)	9.87	48.67	734	2.99	33	
DE	2746	STUTTGART-ECH.(FLUGWEGA)	9.22	48.68	373	0.90	30	
DE	2716	STUTTGART-HOHENHEIM	9.22	48.72	401	0.86	26	
DE	92307	SUDELFELD	12.00	47.67	1195	4.90	17	
DE	92308	SUDELFELD (POLIZEIHEIM)	12.05	47.68	1070	5.05	7	
DE	75002	TAUNUSSTEIN-EISERNE HAND	8.17	50.13	420	1.25	27	
DE	73060	TETTAU	11.27	50.47	578	2.11	9	
DE	4035	TEUSCHNITZ-WICKENDORF	11.37	50.38	568	2.40	19	
DE	92334	THALHAM	11.82	47.83	628	3.88	11	
DE	90751	THALMAESSING	11.23	49.08	417	0.55	31	
DE	91202	TIEFENBACH	12.58	49.43	543	2.08	30	
DE	71357	TIEFENBRONN	8.80	48.82	344	0.97	17	
DE	73411	TIEFENELLERN	11.08	49.92	394	1.30	27	
DE	4476	TIRSCHENREUTH	12.35	49.88	515	1.24	17	
DE	4169	TOELZ,BAD	11.55	47.78	640	2.98	25	
DE	48601	TOSTEDT	9.72	53.28	58	0.75	26	*
DE	91376	TRAITSCHING	12.65	49.15	435	1.26	31	
DE	2737	TRIBERG	8.23	48.13	683	3.83	33	
DE	2276	TRIER-PETRISBERG	6.67	49.75	265	0.61	22	
DE	48524	TRITTAU	10.42	53.62	28	0.84	24	
DE	90135	TROCHTELFINGEN-STEINHIL.	9.28	48.32	795	1.93	26	
DE	2748	TUEBINGEN (SCHLOSS)	9.05	48.52	370	0.73	21	
DE	4091	UFFENHEIM	10.23	49.53	340	0.70	33	
DE	2730	ULM (WST)	9.95	48.38	567	1.14	33	
DE	92708	UNTERGRIESBACH-SCHAIBING	13.65	48.60	495	2.40	25	
DE	92104	UNTERMMERGAU	11.02	47.62	840	4.16	16	
DE	56128	VISSELHOEVEDE	9.58	52.98	58	0.66	26	*
DE	3244	WAHNSDORF B. DRESDEN	13.68	51.12	246	0.94	58	
DE	71718	WALDBRUNN-OBERDIELBACH	9.05	49.45	490	1.80	26	
DE	51337	WALDECK-NIEDERWERBE	9.02	51.22	240	0.63	31	
DE	40142	WALDERSHOF-HOHENHARD	12.07	49.93	690	2.82	25	
DE	4515	WALDHAUSER (NAT.PARK)	13.47	48.93	940	6.59	12	
DE	92009	WALLGAU-OBERNACH	11.30	47.55	824	7.55	22	
DE	92336	WARNGAU-TAUBENBERG	11.77	47.82	795	3.12	31	
DE	2615	WARTENBERG-ANGERSBACH	9.45	50.63	270	0.59	19	
DE	73762	WARTMANNSTROTH-NEUWIRTHS.	9.83	50.20	422	1.04	31	
DE	92374	WASSERBURG/INN-GABERSEE	12.20	48.05	485	1.07	27	
DE	2625	WASSERKUPPE (WST)	9.95	50.50	921	5.42	33	
DE	73154	WATTENDORF	11.13	50.03	522	1.74	31	
DE	4481	WEIDEN/OPF.(WST)	12.18	49.67	438	1.03	33	
DE	2791	WEINGARTEN,KR.RAVENSBURG	9.62	47.80	440	0.89	17	

DE	4083	WEISSENBURG/BAY.(WST)	10.97	49.02	422	0.79	33	
DE	53222	WELLIE	9.08	52.57	27	0.60	21	
DE	78769	WENDEN-ROEMERSHAGEN	7.83	50.93	415	1.86	29	
DE	92158	WENG BEI FAHRENZHAUSEN	11.58	48.37	460	0.89	31	
DE	73603	WERNECK	10.10	49.98	225	0.57	31	
DE	90303	WESTERHEIM	9.62	48.52	807	2.77	17	
DE	73407	WIESENTAL-BIRKENREUTH	11.23	49.80	490	1.50	19	
DE	71742	WILHELMSFELD	8.77	49.47	350	1.35	26	
DE	1586	WILLINGEN/UPLAND	8.60	51.30	580	3.11	33	
DE	52104	WILLINGEN/UPLD.-EIMELROD	8.70	51.30	500	1.34	31	
DE	78723	WINTERBERG-ALTASTENBERG	8.47	51.20	782	5.70	24	
DE	78274	WIPPERFUERTH-KREUZBERG	7.45	51.15	365	1.69	31	
DE	92022	WOLFRATSHAUSEN	11.43	47.93	570	1.74	28	
DE	2674	WUERZBURG (WST)	9.97	49.77	268	0.58	32	
DE	73774	ZIEGLERFELD	9.52	50.20	328	0.92	15	
DE	91315	ZWIESEL-RABENSTEIN	13.20	49.03	690	4.73	29	
DE	4493	ZWIESELBERG	13.22	49.00	615	3.27	19	
FI	1141101	ANJALANKOSKI, MÄMMÄLÄ	26.86	60.67	40	2.30	33	
FI	21070	ANSOPURO, SOTKAMO	28.36	64.29	218	2.62	33	
FI	1049101	ENO, LUHTAPOHJA	30.43	62.79	126	2.68	33	
FI	1656301	ENONTEKIÖ, HETTA	23.68	68.39	300	2.90	33	
FI	1340101	Eurajoki,Olkiluoto	21.48	61.24	5	2.14	33	
FI	20810	HAAPAJYRÄ, YLISTARO	22.48	62.93	22	1.55	33	
FI	1820001	HANKO, SANTALA	23.08	59.88	2	2.20	33	
FI	1357701	HAUHO, LÄNSI-HAHKIALA	24.59	61.10	102	2.18	33	
FI	1149301	HAUKIVUORI	27.27	61.96	128	2.22	33	
FI	20720	HEINÄJOKI, KORPILAHTI	25.40	62.17	131	2.46	33	
FI	1042701	HEINÄVESI, HASUMÄKI	28.78	62.38	98	2.50	33	
FI	20440	HUHTISUONOJA, RUOKOLAHTI	29.65	61.38	85	2.55	33	
FI	21010	HUOPAKINOJA, PATTIJOKI	24.61	64.67	16	1.95	33	
FI	1594501	HYRYNSALMI, PALJAKKA	28.08	64.73	380	3.45	33	
FI	1141201	IITTI, KAURAMAA	26.28	60.92	86	2.40	33	
FI	21171	IITTOVUOMA 1	21.46	68.74	484	2.90	33	
FI	21172	IITTOVUOMA 2	21.45	68.73	510	2.95	33	
FI	21173	IITTOVUOMA 3	21.48	68.75	539	3.00	33	
FI	21174	IITTOVUOMA 4	21.48	68.73	651	3.00	33	
FI	1658101	IL.,SODANKYLÄN OBSERVATORIO	26.63	67.34	180	2.60	33	
FI	1049201	ILOMANTSI	30.93	62.66	160	2.83	33	
FI	1049501	ILOMANTSI, NAARVA	31.06	63.06	178	2.82	33	
FI	1680401	INARI, ANGELI	25.67	68.91	200	2.55	33	
FI	1715101	INARI, IVALON MATTI	25.88	68.37	266	3.25	33	
FI	1711101	INARI, NELLIM	28.31	68.84	124	2.38	33	
FI	1714301	INARI, REPOJOKI	25.93	68.43	266	3.20	33	
FI	1690601	INARI, SEVETTIJÄRVI	28.60	69.51	101	2.43	33	
FI	1712101	INARI, TOIVONNIEMI	27.07	69.03	140	2.42	33	
FI	1718101	INARI,LEMMENJOKI	26.23	68.75	160	2.55	33	
FI	1420401	JALASJÄRVI	22.74	62.48	120	2.20	33	
FI	1359201	JOKIOINEN	23.49	60.81	100	2.28	33	
FI	20450	JUONISTONOJA, HAUKIVUORI	27.23	61.95	120	2.20	33	
FI	1400001	JURVA, KIVINEVA	21.89	62.78	80	1.77	33	
FI	20830	KAIDELUOMA, ALAVUS	23.64	62.53	101	2.36	33	
FI	20820	KAINASTONLUOMA, YLISTARO	22.52	62.93	37	1.55	33	
FI	1320001	KALANTI	21.60	60.80	20	2.56	33	
FI	1370201	KARIJOKI	21.93	62.26	121	2.39	33	
FI	1230401	KARKKILA,HAAPALA,HAUKKAMÄKI	24.19	60.52	89	2.70	33	
FI	1500001	KARLEBY	23.23	63.88	19	1.58	33	



FI	20330	KATAJALUOMA, IKAALINEN	22.78	61.69	109	2.08	33	
FI	21060	KAUKOLANPURO, PYHÄNTÄ	26.77	64.08	177	2.45	33	
FI	1653101	KEMIJÄRVI, HALOSEN RANTA	27.49	66.65	171	2.57	33	
FI	1653102	KEMIJÄRVI, JUMISKON VL, KONEAS.	27.78	66.51	183	2.70	33	
FI	20510	KESSELINPURO, OUTOKUMPU	29.03	62.67	100	2.68	33	
FI	1356601	KEURUU, SUOLAHTI	24.62	62.29	120	2.48	33	
FI	1351501	KIIKOINEN	22.57	61.46	70	1.95	33	
FI	21180	KIRNUOJA, SIMO	24.78	65.68	9	2.57	33	
FI	1655701	KITTILÄ, HORMAKUMPU	25.20	67.67	200	2.85	33	
FI	1658401	KITTILÄ, POKKA	25.77	68.16	268	3.30	33	
FI	1656801	KITTILÄ, PULJU	24.83	68.23	282	3.03	33	
FI	1045701	KIURUVESI, LAPINSALO	26.63	63.63	179	2.45	33	
FI	20620	KOHISEVANPURO, KARTTULA	27.28	62.85	117	2.45	33	
FI	1673701	KOLARI, KATTILAMAA	24.02	67.38	174	2.70	33	
FI	1144101	KONGINKANGAS, KIVETTY	25.69	62.81	180	2.65	33	
FI	1144201	KONNEVESI, SÄRKISALO	26.17	62.75	121	2.48	33	
FI	1147102	KONNEVESI, TUTKIMUSASEMA	26.34	62.62	100	2.32	33	
FI	20170	KOPPELONOJA, KOSKI HL.	25.14	61.01	120	2.40	33	
FI	21130	KORINTTEENOJA, ROVANIEMEN MLK.	26.88	66.33	109	2.77	33	
FI	20611	KORPIJOKI	26.37	63.73	112	2.35	33	
FI	1358301	KOSKI HL, ETOLA	25.23	61.04	120	2.45	33	
FI	21200	KOTIOJA, RANUA	26.15	66.14	168	3.00	33	
FI	1357201	KUHMALAHTI, VÄHÄ-PENTO	24.54	61.51	101	2.08	33	
FI	1044401	KUHMO, JONKERI	29.73	63.95	204	2.70	33	
FI	1599101	KUHMO, PALONIEMI	29.22	64.10	160	2.40	33	
FI	1599501	KUHMO, VARAJOKI	29.68	64.20	180	2.50	33	
FI	1599502	Kuhmo, Lentua, Romuvaara	29.93	64.23	340	2.60	33	
FI	1142601	KUHMOINEN, PUUKKOINEN	25.17	61.66	121	2.20	33	
FI	20940	KUIKKISENOJA, KÄLVÄÄ	23.40	63.91	12	1.55	33	
FI	1740101	KUUSAMO, KOSKENKYLÄ	29.80	65.89	260	2.70	33	
FI	1595301	KUUSAMO, KURVINEN	29.57	65.58	240	3.00	33	
FI	21110	KUUSIVAARANPURO, SALLA	28.13	66.75	180	2.67	33	
FI	1146401	KYYJÄRVI, MÖKSY	24.31	63.03	200	2.22	33	
FI	21210	LAANIOJA, INARI	27.45	68.38	345	2.80	33	
FI	1357801	LAMMI, EVO	25.19	61.18	162	2.39	33	
FI	1470301	LAPPAJÄRVI, KK	23.63	63.18	80	1.76	33	
FI	1060201	LAPPEENRANTA	28.19	60.83	60	2.68	33	
FI	1330001	LAPPI TL, KAUKOLA	21.91	61.07	40	2.40	33	
FI	20430	LATOSUONOJA, RUOKOLAHTI	28.69	61.36	90	2.58	33	
FI	20040	LAUHAVUORI, ISOJOKI	22.17	62.15	218	2.85	33	
FI	1440701	LEHTIMÄKI, LÄNSIKYLÄ	23.76	62.81	140	2.35	33	
FI	1046302	LEHTOMÄKI, NILSIÄ	27.98	63.23	175	2.55	33	
FI	1042702	LEPPÄVIRTA, PAUKARLAHTI	27.55	62.68	117	2.50	33	
FI	1044901	LIEKSA, RUUNAA	30.42	63.43	142	2.75	33	
FI	20612	LIITTOPERÄ	26.22	63.73	142	2.38	33	
FI	1043502	LIPERI, AHONKYLÄ	26.18	62.65	91	2.62	33	
FI	21120	LISMANOJA, SODANKYLÄ	26.56	67.24	211	2.62	33	
FI	21140	LOMAKYLÄ	27.74	66.45	159	2.60	33	
FI	20210	LÖYTÄNEENOJA, KOKEMÄKI	22.24	61.27	41	2.04	33	
FI	20180	LÖYTTYNOJA, LAMMI	25.01	61.04	146	2.40	33	
FI	1360101	MERIKARVIA, LANKOSKI	21.68	61.81	28	2.15	33	
FI	1351502	MOUHJÄRVI, TERVAMÄKI	22.90	61.51	79	1.95	33	
FI	1591201	MUHOS, LEPPINIEMI	26.03	64.85	38	1.98	33	
FI	1145401	MULTIA, SAHRAJÄRVI	25.02	62.43	181	2.80	33	
FI	21040	MURRONOJA, PYHÄNTÄ	26.78	64.10	165	2.45	33	
FI	20540	MURTOPURO, VALTIMO	28.48	63.79	214	2.80	33	

FI	1043901	MUSTALAHTI,KESÄLAHTI	29.71	62.07	94	2.28	33	
FI	20530	MUSTAPURO, OUTOKUMPU	29.18	62.78	88	2.68	33	
FI	21160	MYLLYOJA, SAVUKOSKI	28.13	67.31	180	2.55	33	
FI	21030	MYLLYPURO, HYRYNSALMI	28.62	64.66	175	2.80	33	
FI	1690603	NÄÄTÄMÖ	29.13	69.66	85	2.50	33	
FI	20410	NIITTYJOKI, VALKEALA	26.75	60.83	55	2.28	33	
FI	20840	NORRSKOGSDIKET, NÄRPES	21.48	62.61	20	1.83	33	
FI	1044101	NURMES, LIPINLAHTI	29.31	63.54	116	2.58	33	
FI	1440901	NURMO, MARTIKKALANJÄRVI	22.88	62.86	104	2.02	33	
FI	1180501	ORIMATTILA, KEITURI	25.45	60.83	90	2.50	33	
FI	1160001	ORIMATTILA, PAKAA	25.78	60.72	60	2.45	33	
FI	1359101	ORIPÄÄ,TEINIKIVI	22.71	60.89	80	2.25	33	
FI	20930	PAHKAOJA,LESTIJÄRVI	24.44	63.44	159	2.20	33	
FI	1490901	PERHO, PELTOKANGAS	24.13	63.24	140	1.95	33	
FI	1595401	PESIÖ, JOUTENVAARA	28.54	64.93	269	3.00	33	
FI	1595402	PESIÖ, JOUTENVAARA, I-L	28.53	64.93	260	3.00	33	
FI	1147901	PIEKSAMÄKI	27.23	62.30	136	2.45	33	
FI	1147301	PIELAVESI, SÄVIÄ	26.66	63.19	120	2.30	33	
FI	1144701	PIHTIPUDAS, Luomala	25.67	63.34	124	2.40	33	
FI	1048401	POLVIJÄRVI, MARTONVAARA	29.41	63.08	162	2.85	33	
FI	1280001	PÖYTYÄ, RIIHIKOSKI	22.60	60.72	63	2.52	33	
FI	1612101	PUDASJÄRVI, JONKU	27.17	65.32	120	2.55	33	
FI	1617101	PUDASJÄRVI, KORPINEN	27.63	65.20	140	2.70	33	
FI	1615201	PUDASJÄRVI, SARAKYLÄ	27.33	65.78	160	2.90	33	
FI	1570601	PULKKILA,JYLHÄNRANTA	25.85	64.33	79	2.10	33	
FI	1600501	PUOLANKA	27.81	64.80	202	3.00	33	
FI	1041201	PUUMALA, HEISKA	28.00	61.58	85	2.35	33	
FI	1540501	PYHÄJÄRVI OL	25.48	63.60	100	2.35	33	
FI	1657801	RAUDANJOKI	26.40	67.01	180	2.80	33	
FI	1147101	RAUTALAMPI	26.69	62.62	100	2.37	33	
FI	1046801	RAUTAVAARA, ALALUOSTA	28.47	63.27	120	2.60	33	
FI	1046802	RAUTAVAARA, YLÄLUOSTA	28.66	63.38	161	2.70	33	
FI	20420	RAVIJOKI, VIROLAHTI	27.56	60.53	20	2.37	33	
FI	1652401	ROVANIEMI MLK, PEKKALA	26.83	66.38	159	2.76	33	
FI	1657101	ROVANIEMI, OLKKAJÄRVI	25.97	66.57	120	2.68	33	
FI	20710	RUUNAPURO, LAUKAA	26.03	62.51	101	2.34	33	
FI	1146801	SAARIJÄRVI, PYHÄJÄRVI	25.48	62.80	155	2.65	33	
FI	1654801	SALLA, KELLOSELKÄ	28.99	66.94	200	2.70	33	
FI	1654701	SALLA, NARUSKA	29.23	67.21	280	2.96	33	
FI	20220	SAVIJOKI, TARVASJOKI	22.64	60.59	60	2.63	33	
FI	1041401	SAVITAIPALE	27.53	61.18	100	2.40	33	
FI	1042901	SAVONLINNA, HAAPALA	28.93	61.92	108	2.28	33	
FI	1654301	SAVUKOSKI, AINJÄRVI	29.46	67.76	240	2.90	33	
FI	1046501	SIILINJÄRVI, KK	27.68	63.09	101	2.38	33	
FI	20320	SIUKOLANPURO, ORIVESI	24.35	61.66	109	2.16	33	
FI	1655901	SODANKYLÄ, UNARI	25.74	67.23	200	2.50	33	
FI	1659301	SODANKYLÄ, VUOTSO	27.12	68.10	259	2.98	33	
FI	1046401	SONKAJÄRVI, UURA	27.84	63.76	171	2.70	33	
FI	1046402	SOTKAMO, LAAKA	28.28	63.83	311	3.10	33	
FI	20850	SULVANJOKI, KORSHOLM	21.68	62.99	10	1.59	33	
FI	1240301	SUOMUSJÄRVI, TAIPALE	23.70	60.32	61	2.58	33	
FI	1595403	SUOMUSSALMI, JOKINIEMI	28.65	64.96	219	2.80	33	
FI	1594301	SUOMUSSALMI, PESIÖ	28.56	64.93	241	2.90	33	
FI	1595101	SUOMUSSALMI, RUHTINANSALMI	29.50	65.22	200	2.70	33	
FI	20560	SUOPURO, SOTKAMO	28.48	63.88	200	2.83	33	
FI	20460	SYVÄOJA, SAVONLINNA	28.78	62.08	99	2.34	33	

FI	1616201	TAIVALKOSKI,INGET	28.56	65.73	258	3.20	33	
FI	1580201	TEMMES	25.62	64.65	40	2.03	33	
FI	1020101	TOHMAJÄRVI,KEMIE	30.35	62.23	102	2.52	33	
FI	20920	TUJUOJA, HAAPAJÄRVI	25.35	63.74	97	1.95	33	
FI	1280002	TURKU	22.24	60.48	21	2.64	33	
FI	20910	TUURAOJA, KALAJOKI	24.02	64.23	20	1.80	33	
FI	1210801	TUUSULA, RUSKELA	25.00	60.45	60	2.65	33	
FI	1352801	URJALA, VALAJÄRVI	23.32	61.07	120	2.00	33	
FI	1680701	UTSJOKI	26.94	69.93	115	2.40	33	
FI	1592101	VAALA, NISKA	26.79	64.59	121	2.30	33	
FI	21020	VÄÄRÄJOKI,KUUSAMO	29.18	65.91	261	2.93	33	
FI	1595404	VAATOJÄRVI	28.68	64.93	220	2.80	33	
FI	1149101	VALKEALA, VOIKOSKI	26.78	61.25	98	2.30	33	
FI	1046301	VARPAISJÄRVI, KÄRSÄMÄKI	27.99	63.37	120	2.64	33	
FI	1720321	VÄRRIÖ	29.59	67.73	462	2.88	33	
FI	1230901	VIHTI, SUONTAA	24.39	60.42	47	2.70	33	
FI	1593901	VUOLIJOKI, SAARESMAKI	26.93	64.05	212	2.50	33	
FI	1340401	YLÄNE	22.42	60.88	60	2.42	33	
FI	21190	YLIJOKI, RANUA	26.18	66.14	167	3.05	33	
FI	1679101	YLITORNIO, HAAPAKOSKI	23.78	66.38	60	2.80	33	
FI	1679801	YLITORNIO, MELTOSJÄRVI	24.65	66.53	100	2.80	33	
FR	800011	ABBEVILLE	1.83	50.13	77	0.28	48	
FR	470911	AGEN	0.60	44.18	60	0.21	40	
FR	200042	AJACCIO	8.80	41.92	9	0.35	43	
FR	610011	ALENCON	0.10	48.45	11	0.41	48	
FR	10041	AMBERIEU	5.33	45.98	254	0.53	43	
FR	490071	ANGERS	-0.57	47.50	58	0.21	43	
FR	60042	ANTIBES	7.13	43.57	82	0.54	44	
FR	893461	AUXERRE	3.55	47.80	212	0.41	44	
FR	180921	AVORD	2.65	47.05	179	0.29	42	
FR	682971	BALE	7.52	47.60	271	0.57	44	
FR	201481	BASTIA	9.48	42.55	12	0.40	44	
FR	606391	BEAUVAIS	2.12	49.45	111	0.31	44	
FR	900101	BELFORT	6.87	47.63	423	1.12	43	
FR	560091	BELLE-ILE LE TALUT	-3.22	47.30	43	0.16	41	
FR	250561	BESANCON	5.98	47.25	309	0.68	44	
FR	640241	BIARRITZ	-1.53	43.47	71	0.21	38	
FR	400461	BISCAROSSE	-1.25	44.43	39	0.29	36	*
FR	332811	BORDEAUX	-0.70	44.83	61	0.21	44	*
FR	621601	BOULOGNE SUR MER	1.60	50.73	74	0.44	44	
FR	730541	BOURG SAINT MAURICE	6.77	45.62	868	2.56	44	
FR	180331	BOURGES	2.37	47.07	166	0.32	42	
FR	290751	BREST	-4.42	48.45	103	0.44	48	
FR	911031	BRETIGNY	2.33	48.60	85	0.24	44	
FR	141371	CAEN	-0.45	49.18	67	0.44	44	
FR	200501	CALVI	8.80	42.53	58	0.53	32	
FR	622981	CAMBRAI	3.15	50.22	77	0.38	39	
FR	60291	CANNES	6.95	43.55	9	0.47	43	
FR	661481	CAP BEAR	3.13	42.52	86	0.91	40	
FR	201071	CAP CORSE	9.37	43.00	111	0.21	41	*
FR	500201	CAP DE LA HAGUE	-1.93	49.72	9	0.40	43	
FR	765521	CAP DE LA HEVE	0.07	49.52	103	0.41	43	
FR	61211	CAP FERRAT	7.33	43.68	143	0.07	42	*
FR	332362	CAP FERRET	-1.25	44.63	10	0.31	40	*
FR	200411	CAP PERTUSATO	9.18	41.37	110	0.43	36	
FR	130554	CAP POMEGRUES	5.30	43.27	73	0.04	42	*

FR	110691	CARCASSONNE	2.32	43.22	130	0.81	44	
FR	840311	CARPENTRAS	5.05	44.08	105	0.18	29	
FR	335291	CAZAUX	-1.13	44.53	33	0.19	43	*
FR	280701	CHARTRES	1.52	48.47	156	0.34	48	
FR	580621	CHATEAU-CHINON	3.93	47.07	605	0.82	38	
FR	281981	CHATEAUDUN	1.38	48.05	127	0.35	41	
FR	360631	CHATEAUROUX	1.72	46.85	157	0.32	41	
FR	211541	CHATILLON	4.58	47.85	264	0.47	39	
FR	502091	CHERBOURG	-1.47	49.65	138	0.62	24	
FR	631131	CLERMONT-FERRAND	3.17	45.78	332	0.49	44	
FR	160891	COGNAC	-0.32	45.67	31	0.21	44	
FR	682051	COLMAR	7.40	47.92	217	0.60	34	
FR	950781	CORMEILLES	2.03	49.08	100	0.28	41	
FR	400881	DAX	-1.07	43.68	32	0.21	34	
FR	145781	DEAUVILLE	0.17	49.37	147	0.40	39	
FR	764661	DIEPPE	1.10	49.93	34	0.35	44	
FR	214731	DIJON	5.08	47.27	227	0.53	44	
FR	352281	DINARD	-2.07	48.58	59	0.29	43	
FR	591831	DUNKERQUE	2.33	51.05	23	0.21	23	*
FR	50461	EMBRUN	6.50	44.57	876	1.04	44	
FR	273471	EVREUX	1.22	49.02	143	0.32	25	
FR	461271	GOURDON	1.40	44.75	264	0.28	44	
FR	383841	GRENOBLE ST GEOIRS	5.33	45.37	386	0.66	25	*
FR	830691	HYERES	6.15	43.10	4	0.12	27	*
FR	291551	ILE D OUESSANT	-5.12	48.47	32	0.13	41	*
FR	851131	ILE D YEU	-2.33	46.70	47	0.22	41	
FR	290821	ILE DE BATZ	-4.02	48.75	37	0.37	44	
FR	220161	ILE DE BREHAT	-3.00	48.85	36	0.35	42	
FR	560691	ILE DE GROIX	-3.50	47.65	54	0.07	44	*
FR	830692	ILE PORQUEROLLES	6.23	43.00	147	0.26	40	
FR	130471	ISTRES	4.93	43.52	24	0.37	24	
FR	173001	LA ROCHELLE	-1.15	46.15	10	0.24	36	
FR	292641	LANDIVISIAU	-4.15	48.52	115	0.71	26	
FR	522691	LANGRES	5.32	47.83	462	0.75	44	
FR	952771	LE BOURGET	2.45	48.97	65	0.25	47	*
FR	830311	LE LUC	6.38	43.38	78	0.85	44	
FR	721811	LE MANS	0.20	47.93	52	0.31	44	
FR	628261	LE TOUQUET	1.62	50.52	14	0.50	38	
FR	593431	LILLE	3.10	50.57	52	0.44	43	
FR	870856	LIMOGES	1.18	45.87	402	0.43	44	
FR	561851	LORIENT	-3.45	47.77	44	0.25	41	
FR	261681	LUS LA CROIX HAUTE	5.70	44.68	1061	1.76	32	
FR	704731	LUXEUIL	6.35	47.78	273	0.62	44	
FR	690291	LYON BRON	4.95	45.72	201	0.47	43	
FR	711051	MACON	4.80	46.30	217	0.47	44	
FR	130541	MARIGNANE	5.22	43.45	36	0.32	44	
FR	773061	MELUN	2.68	48.62	92	0.24	44	
FR	570391	METZ	6.13	49.08	191	0.43	44	
FR	121451	MILLAU	3.02	44.12	720	0.75	44	
FR	303391	MONT AIGOUAL	3.58	44.12	1565	3.90	44	
FR	401921	MONT DE MARSAN	-0.50	43.92	60	0.24	44	
FR	713201	MONT SAINT VINCENT	4.43	46.65	603	0.65	39	
FR	261981	MONTELMAR	4.73	44.58	74	0.78	44	
FR	341541	MONTPELLIER	3.97	43.58	5	0.57	44	
FR	545261	NANCY ESSEY	6.22	48.68	217	0.50	42	
FR	440201	NANTES	-1.60	47.17	27	0.22	43	

FR	581601	NEVERS	3.10	47.00	181	0.28	44	
FR	60881	NICE	7.20	43.65	10	0.15	42	*
FR	301891	NIMES COURBESSAC	4.40	43.87	62	0.31	43	
FR	302581	NIMES GARONS	4.42	43.75	96	0.37	29	
FR	840871	ORANGE	4.83	44.13	55	0.32	40	
FR	450551	ORLEANS	1.75	47.98	125	0.32	44	
FR	940771	ORLY	2.40	48.73	96	0.28	43	
FR	751141	PARIS MONTSOURIS	2.33	48.82	77	0.29	41	
FR	645491	PAU	-0.42	43.38	185	0.26	44	*
FR	661361	PERPIGNAN	2.87	42.73	48	0.56	42	*
FR	350491	POINT DU GROUIN	-1.85	48.72	41	0.26	44	
FR	173201	POINTE DE CHASSIRON	-1.42	46.05	22	0.16	44	
FR	172251	POINTE DE LA COURBE	-1.23	45.70	7	0.15	42	
FR	860271	POITIERS	0.32	46.58	120	0.28	44	
FR	292161	QUIMPER	-4.17	47.97	94	0.19	25	*
FR	511831	REIMS	4.03	49.30	99	0.32	44	
FR	352811	RENNES	-1.72	48.07	78	0.25	44	
FR	761161	ROUEN	1.18	49.38	157	0.44	25	
FR	40491	SAINT AUBAN	6.00	44.07	461	0.46	39	
FR	524481	SAINT DIZIER	4.90	48.63	140	0.46	36	
FR	420051	SAINT ETIENNE	4.30	45.53	402	0.68	44	
FR	92891	SAINT GIRONS	1.10	43.00	412	0.53	38	
FR	441031	SAINT NAZAIRE	-2.17	47.32	4	0.10	35	*
FR	714911	SAINT YAN	4.02	46.42	244	0.38	39	
FR	23201	SAIT QUENTIN	3.20	49.82	101	0.31	43	
FR	131031	SALON DE PROVENCE	5.10	43.60	60	0.24	44	
FR	343012	SETE	3.68	43.68	81	0.38	43	
FR	671241	STRASBOURG	7.63	48.55	154	0.59	44	
FR	653441	TARBES	0.00	43.18	363	0.41	42	
FR	831371	TOULON	5.93	43.10	27	0.12	44	
FR	310691	TOULOUSE BLAGNAC	1.37	43.63	153	0.29	44	
FR	311151	TOULOUSE FRANCAZAL	1.37	43.37	166	0.26	43	
FR	372612	TOURS	0.72	47.45	112	0.40	33	
FR	786211	TRAPPES	2.02	48.77	168	0.37	48	*
FR	30601	VICHY	3.40	46.17	251	0.44	40	
FR	786401	VILLACOUBLAY	2.20	48.77	179	0.32	44	
GR	316	AGIOS GEORGIOS	25.48	35.17	820	1.30	25	
GR	219	AGIOS GERMANOS	21.17	40.83	1050	1.31	17	
GR	312	AGIOS THOMAS	25.03	35.15	530	0.67	21	
GR	245	AGRA	22.02	40.80	340	0.26	9	
GR	281	AIDONOHORI	23.73	40.85	184	0.73	21	
GR	32	AKOVOS	22.17	37.18	800	0.70	21	
GR	282	ALISTRATI	23.97	41.07	281	0.87	21	
GR	95	AMARANTOS	20.73	40.17	925	0.87	18	
GR	115	ANEMORAHY	21.08	39.32	400	0.37	21	
GR	84	ANIADA	21.78	38.82	1060	1.50	26	
GR	142	ANO CALENDINI	21.20	39.25	244	0.82	24	
GR	38	ANO KARIES	22.03	37.43	980	1.16	7	
GR	40	ANO MELPIA	21.95	37.33	630	0.45	14	
GR	283	ANO VRONTOU	23.68	41.30	1053	1.62	21	
GR	276	ANTHOFITO	22.72	40.85	150	0.55	21	
GR	10	ARAHAMITES	22.23	37.45	760	0.64	23	
GR	313	ARCHANES	25.17	35.23	380	0.37	25	
GR	61	ARGITHEA	21.55	39.35	980	1.75	22	
GR	186	ARGOS ORESTICO	21.27	40.47	650	0.89	23	
GR	274	ARNEA	23.60	40.48	595	0.83	20	

GR	64	ATROXORI	21.28	39.27	560	1.92	25	*
GR	204	AXLADA	21.58	40.87	740	2.37	6	
GR	265	AXLADIA	24.02	41.40	600	1.19	23	*
GR	264	AXLADOHORI	23.53	41.32	485	0.32	18	
GR	21	BOZIKA	22.60	37.92	850	0.61	14	
GR	237	BRALOS	22.47	38.73	600	1.51	18	
GR	220	CALITHEA	21.15	40.80	1080	1.63	18	
GR	309	CALIVOS	24.78	35.32	530	0.50	25	
GR	303	CANDANOS	23.75	35.33	420	0.43	23	
GR	196	CARPERO	21.62	39.95	510	0.91	23	
GR	242	CASTORIA	21.27	40.52	651	1.08	30	
GR	256	CATAFITO	23.68	41.35	740	1.19	22	
GR	259	CATO VRONTOU	23.75	41.27	660	1.32	23	
GR	193	CIDONIES	21.28	40.17	910	1.48	21	
GR	99	CIPI	20.80	39.87	790	0.79	18	
GR	192	CIPOURGIO	21.37	39.95	868	1.99	24	
GR	187	CLISSOURA	21.47	40.53	1250	1.57	16	
GR	137	CONIACOS	22.18	38.65	850	1.01	21	
GR	139	DAFNOS	22.10	38.50	1050	1.50	21	
GR	232	DAVLIA	22.73	38.52	380	0.72	25	
GR	184	DENDROHORI	21.15	40.58	980	0.92	21	
GR	171	DESKATI	21.80	39.93	830	1.61	19	
GR	208	DISTRATO	21.02	40.03	950	1.27	5	
GR	174	DRACOTRIPA	21.60	39.42	680	2.16	25	
GR	236	DRIMEA	22.57	38.72	580	1.33	25	
GR	211	DROSSOPIGI	20.90	40.22	1055	1.22	5	
GR	198	EANI	21.82	40.17	480	0.79	22	
GR	290	EHINOS	24.97	41.28	340	1.45	21	
GR	224	ELASSONA	22.18	39.90	312	0.86	36	
GR	110	ELATOHORI	20.98	39.87	1014	1.57	21	
GR	70	EPINIANA	21.62	39.13	1050	2.09	23	
GR	206	EPTAHORI	21.03	40.22	860	1.13	18	
GR	278	EVROPOS	22.38	40.90	70	0.72	20	
GR	194	EXARHOS	21.63	40.17	720	1.03	21	
GR	254	EXOHI	23.82	41.42	620	0.91	23	
GR	209	FOURCA	20.93	40.17	1350	2.33	12	
GR	168	FOURNA	21.87	39.07	820	1.50	23	
GR	132	FRAXO	21.30	39.32	700	0.29	5	
GR	19	FROUSSOUNA	22.42	37.72	1020	1.41	14	
GR	188	GALATINI	21.55	40.32	990	2.03	16	
GR	277	GOUMENISSA	22.45	40.95	255	0.89	34	
GR	89	GRAMMENI OXIA	22.00	38.73	1160	2.22	15	
GR	250	GRANITIS	23.93	41.28	790	1.45	23	
GR	183	HALARA	21.23	40.65	880	1.32	23	
GR	97	ILIOHORI	20.92	39.98	980	1.38	13	
GR	234	IPATI	22.23	38.87	286	1.62	18	
GR	243	KALIPEFKI	22.47	39.97	1050	2.52	12	
GR	58	KAPSALA	21.25	39.40	840	1.71	25	
GR	4	KARDARAS	22.30	37.62	950	1.77	10	
GR	165	KAROPLESSI	21.77	39.17	910	2.52	23	
GR	201	KATAFIGIO	22.15	40.25	1100	2.00	12	
GR	248	KATO ORINI	23.58	41.20	730	0.75	17	
GR	44	KATO VLASSIA	21.92	38.00	800	0.89	11	
GR	46	KERPINI	22.10	38.08	1090	1.91	11	
GR	167	KLISTO	21.82	39.08	780	1.77	26	
GR	85	KRIKELO	21.85	38.80	1120	2.13	26	

GR	47	LAGOVOUNI	22.07	37.97	880	0.78	9	
GR	262	LECANI	24.55	41.17	710	0.98	23	
GR	200	LEFCARA	21.97	40.28	470	0.53	22	
GR	197	LEFCOPIGI	21.75	40.23	660	0.74	20	
GR	273	LICODROMI	24.78	41.22	320	0.51	22	
GR	205	LICORAHI	20.90	40.27	1000	1.54	4	
GR	255	LOFCOGIA	23.88	41.42	640	1.20	22	
GR	26	LOGANIKOS	22.25	37.23	780	0.84	23	
GR	238	MACRINITSA	22.98	39.40	690	2.59	33	
GR	251	MACRIPLAGI	24.27	41.22	750	0.73	22	
GR	79	MALESSIADA	21.33	38.90	380	0.21	12	
GR	16	MATI	22.33	37.82	760	0.91	19	
GR	113	MATSOUCI	21.17	39.57	1070	1.38	18	
GR	129	MAYROMATA	21.73	39.07	900	1.63	25	
GR	29	MEGALOPOLIS	22.13	37.38	430	0.30	19	
GR	304	MESCLA	23.97	35.40	200	0.21	32	
GR	57	MESOXORA	21.33	39.48	880	1.47	24	
GR	185	MESSOPOTAMIA	21.15	40.52	695	0.96	22	
GR	179	MESSOVOUNO	21.83	40.63	880	1.53	16	
GR	268	MESSOXORI	24.80	41.27	120	0.62	22	
GR	199	METAXAS	21.97	40.08	1040	1.23	23	*
GR	102	METSOVO	21.13	39.82	1350	1.17	6	
GR	111	MICRO PERISTERI	21.08	39.75	1040	1.07	25	
GR	66	MIKRA VRAGIANA	21.45	39.23	590	1.01	25	
GR	222	MIKROLIMNI	21.12	40.75	850	0.71	20	
GR	83	MIRIKI	21.82	38.88	1100	2.92	26	
GR	166	MOLOHA	21.87	39.15	790	2.25	22	
GR	53	MONASTHRAKI	21.58	39.08	660	0.87	25	
GR	190	NEAPOLIS	21.38	40.32	650	1.01	22	
GR	162	NEOXORI	21.87	38.97	800	4.02	26	
GR	285	NIGRITA	23.50	40.92	67	0.46	21	
GR	310	NITHAVRI	24.73	35.17	500	0.89	15	
GR	258	OHIRO	23.85	41.30	550	0.97	23	
GR	288	ORGANI	25.68	41.25	400	1.17	21	
GR	56	PACHTOURI	21.32	39.47	950	1.68	23	
GR	207	PADES	20.92	40.05	1170	1.11	9	
GR	126	PALEOXORI	21.42	39.62	1050	1.90	23	
GR	249	PANORAMA	23.83	41.25	550	0.67	17	
GR	203	PAPADIA	21.68	40.88	900	1.13	9	
GR	98	PAPINGO	20.73	39.97	965	0.85	14	
GR	146	PAVLOPOULOU	21.73	39.00	880	1.67	19	
GR	189	PEFCOS	20.95	40.38	980	1.36	12	
GR	49	PERITHORI	22.35	38.03	940	2.00	24	
GR	257	PERITHORI	23.78	41.32	600	1.02	23	
GR	13	PIANA	22.23	37.57	980	1.00	8	
GR	161	PITSIOTA	21.90	39.02	800	1.99	26	
GR	210	PLAGIA	20.93	40.23	1000	0.63	4	
GR	96	PLICATI	20.77	40.30	1250	2.43	5	
GR	279	POLICASTRO	22.57	41.00	50	0.46	21	
GR	107	POLILOFO	20.70	39.63	702	0.43	13	
GR	266	POTAMI	24.10	41.40	390	0.71	22	
GR	31	POTAMIA	22.13	37.30	390	0.36	18	
GR	124	POURNIA	20.85	40.13	947	0.69	14	
GR	114	PRAMANTA	21.10	39.53	817	1.11	15	
GR	269	PRASSINADA	24.55	41.37	660	0.45	22	
GR	270	PTELEA	24.45	41.22	410	0.66	22	

GR	177	PTOLEMAIDA	21.73	40.47	650	0.86	15	
GR	8	ROINO	22.28	37.58	1080	1.40	17	
GR	100	SCAMNELI	20.85	39.93	1180	1.55	12	
GR	117	SCOULICARIA	21.27	39.65	827	1.53	26	
GR	244	SFICIA	22.22	40.38	600	1.79	23	
GR	226	SIATISTA	21.55	40.27	931	1.50	21	
GR	260	SIDIRONERO	24.23	41.37	570	1.00	22	
GR	18	SKOTINI	22.45	37.78	690	1.69	14	
GR	125	STOURNAREIKA	21.48	39.47	860	1.56	23	
GR	291	TOXOTES	24.77	41.08	59	0.75	11	
GR	77	TRIKLINO	21.45	38.97	620	1.87	26	
GR	68	TROVATO	21.60	39.22	1060	2.08	22	
GR	319	TZERMIADES	25.48	35.20	820	1.30	25	
GR	55	VAKARI	21.37	39.50	1150	1.61	13	
GR	172	VATHILAKOS	21.95	39.13	800	1.47	23	
GR	60	VATHIREMA	21.42	39.45	920	1.61	25	
GR	180	VISSINIA	21.32	40.62	950	1.39	21	
GR	181	VOGATSICO	21.38	40.42	770	1.12	23	
GR	267	VOLACAS	24.00	41.32	840	1.41	23	
GR	175	VOSKOHORI	22.00	40.37	770	0.67	8	
GR	93	VOULPIANI	20.78	40.25	950	1.28	18	
GR	94	VOVOUSSA	21.05	39.93	1000	1.05	18	
GR	221	VRONTERO	21.02	40.75	1090	1.27	20	
GR	48	ZAROUHLA	22.30	37.98	1090	1.86	10	
GR	35	ZATOUNA	22.03	37.58	900	0.85	10	
GR	128	ZITSA	20.65	39.75	710	0.68	9	
IR	6	BELMULLET	-10.00	54.33	11	0.10	39	*
IR	14	BIRR	-7.88	53.08	70	0.20	41	
IR	12	CASEMENT	-6.49	53.36	94	0.35	34	
IR	9	CLAREMORRIS	-9.06	53.81	71	0.28	46	
IR	7	CLONES	-7.23	54.18	89	0.32	43	
IR	13	CORK	-8.48	51.85	162	0.35	34	
IR	4	DUBLIN	-6.25	53.43	71	0.33	51	
IR	11	KILKENNY	-7.29	52.80	66	0.18	40	*
IR	1	MALIN HEAD	-7.39	55.42	27	0.12	41	*
IR	10	MULLINGAR	-7.33	53.58	104	0.25	47	
IR	5	ROCHE'S POINT	-8.34	51.88	43	0.19	30	
IR	8	ROSSLARE	-6.33	52.25	23	0.17	37	*
IR	3	SHANNON	-8.92	52.68	8	0.09	43	
IR	2	VALENTIA	-10.34	52.00	12	0.06	58	*
IS	260	Æðey	-22.67	66.10	5	5.47	41	
IS	95	Akranes	-22.08	64.32	7	1.52	14	
IS	422	Akureyri	-18.08	65.68	23	6.56	32	
IS	103	Andakílsárvirkjun	-21.70	64.53	10	1.87	36	
IS	168	Arnarstapi	-23.63	64.77	20	2.31	23	
IS	936	Austurey II	-20.65	64.18	65	1.95	30	
IS	520	Bakkafjörður	-14.80	66.03	20	5.67	16	
IS	361	Bergstaðir	-19.62	65.70	43	1.78	18	
IS	578	Birkihlíð	-14.62	65.00	120	3.41	13	
IS	827	Bjóla í Þykkvabæ	-20.47	63.80	15	1.31	30	
IS	341	Blönduós	-20.30	65.67	23	1.48	15	
IS	132	Brekka	-21.53	64.78	80	5.67	28	
IS	542	Brú á Jökuldal	-15.53	65.10	360	2.94	28	
IS	192	Búðardalur	-21.78	65.10	20	2.40	12	
IS	620	Dalatangi	-13.58	65.27	9	3.79	33	
IS	562	Dratthalastaðir	-14.33	65.55	37	6.83	32	



IS	570	Egilsstaðir	-14.37	65.30	37	4.81	19	
IS	923	Eyrarbakki	-21.15	63.87	5	2.04	35	
IS	533	Fagridalur	-14.45	65.78	39	3.83	21	
IS	745	Fagurhólsmýri	-16.65	63.88	46	1.91	71	
IS	210	Flatey	-22.92	65.37	3	1.18	13	
IS	335	Forsæludalur	-20.10	65.30	95	2.90	12	
IS	915	Forsæti	-20.72	63.85	10	3.03	36	
IS	250	Galtarviti	-23.57	66.17	20	6.99	25	
IS	484	Garður II	-16.77	66.07	22	7.98	35	
IS	295	Gjögur	-21.35	65.98	5	9.52	33	
IS	575	Grímsárvirkjun	-14.53	65.13	95	3.64	36	
IS	404	Grímsey	-18.02	66.53	15	5.21	24	
IS	495	Grímsstaðir	-16.12	65.63	384	6.94	53	
IS	983	Grindavík	-22.43	63.83	5	2.00	12	
IS	170	Gufuskálar	-23.93	64.90	7	3.13	13	
IS	563	Gunnhildargerði	-14.38	65.55	33	5.31	23	
IS	907	Hæll	-20.25	64.07	121	2.76	38	
IS	580	Hallormsstaður	-14.72	65.10	60	3.83	42	
IS	188	Hamraendar	-21.70	65.02	55	4.76	40	
IS	949	Heiðarbær	-21.23	64.20	125	4.32	16	
IS	855	Hella	-20.40	63.83	20	3.13	39	
IS	340	Hjaltabakki	-20.30	65.63	43	2.31	12	
IS	163	Hjarðarfell	-22.75	64.87	80	2.26	27	
IS	303	Hlaðhamar	-21.17	65.27	28	3.74	36	
IS	705	Höfn í Hornafirði	-15.18	64.25	9	1.69	10	
IS	234	Hólar í Dýrafirði	-23.60	65.87	30	5.26	14	
IS	385	Hólar í Hjaltadal	-19.12	65.73	160	5.06	35	
IS	710	Hólar í Hornafirði	-15.20	64.30	16	2.13	59	
IS	30	Hólmur	-21.72	64.08	87	3.13	23	
IS	284	Horn á Hornströndum	-22.45	66.45	17	8.60	7	
IS	285	Hornbjargsviti	-22.38	66.42	27	11.82	35	
IS	352	Hraun á Skaga	-20.12	66.12	3	2.22	39	
IS	398	Hraun í Fljótum	-19.07	66.10	52	9.00	7	
IS	222	Hvallátur	-24.47	65.53	17	2.71	30	
IS	607	Hvannstöð	-13.88	65.47	88	13.59	7	
IS	892	Hveravellir	-19.57	64.87	641	6.88	31	
IS	254	Ísafjörður	-23.12	66.08	27	5.21	16	
IS	902	Jaðar	-20.17	64.28	135	1.82	38	
IS	406	Kálfsárkot	-18.75	66.02	30	14.67	11	
IS	660	Kambanes	-13.85	64.80	20	2.22	29	
IS	990	Keflavík	-22.60	63.97	49	2.26	32	
IS	772	Kirkjubæjarklaustur	-18.07	63.78	32	3.22	57	
IS	635	Kollaleira	-14.23	65.03	25	3.74	20	
IS	301	Kollsá í Hrutafirði	-21.18	65.35	12	5.21	11	
IS	46	Korpúlfsstaðir	-21.75	64.15	35	1.73	10	
IS	224	Kvígindisdalur	-24.02	65.55	49	3.45	66	
IS	740	Kvísker	-16.43	63.98	30	3.36	36	
IS	919	Lækjarbakki	-20.90	63.80	10	1.43	36	
IS	220	Lambavatn	-24.10	65.50	5	2.53	73	
IS	927	Laugardælir	-20.97	63.95	20	2.17	14	
IS	875	Leirubakki	-20.00	64.00	110	1.82	20	
IS	448	Lerkihlíð	-17.88	65.72	175	9.81	34	
IS	479	Mánárbakki	-17.10	66.20	17	3.88	39	
IS	202	Máskelda	-21.88	65.38	20	2.04	27	
IS	938	Miðfell	-21.07	64.17	110	3.88	19	
IS	790	Mýrar í Álftaveri	-18.33	63.50	20	2.85	36	

IS	462	Mýri	-17.40	65.38	295	3.27	36	
IS	366	Nautabú	-19.37	65.45	115	3.55	27	
IS	951	Nesjavellir	-21.25	64.15	157	8.88	11	
IS	625	Neskaupstaður	-13.67	65.15	29	6.09	13	
IS	825	Önnupartur	-20.62	63.75	10	2.17	29	
IS	680	Papey	-14.17	64.58	19	4.27	15	
IS	505	Raufarhöfn	-15.95	66.45	5	9.52	51	
IS	206	Reykhólar	-22.20	65.45	27	1.65	32	
IS	957	Reykir í Ölfusi	-21.18	64.00	51	1.95	18	
IS	985	Reykjanes	-22.72	63.82	20	1.78	28	
IS	1	Reykjavík	-21.90	64.13	52	2.04	73	
IS	25	Rjúpnahæð	-21.85	64.08	120	2.85	19	
IS	449	Sandbúðir	-17.98	64.93	821	7.92	5	
IS	458	Sandhaugar	-17.50	65.57	175	9.46	30	
IS	452	Sandur	-17.55	65.95	3	5.72	36	
IS	508	Sauðanes	-15.25	66.25	17	3.31	17	
IS	400	Sauðanesviti	-18.97	66.18	30	5.01	7	
IS	360	Sauðárkrókur	-19.65	65.75	5	3.27	14	
IS	126	Síðumúli	-21.37	64.72	78	1.69	26	
IS	401	Síglufjörður	-18.92	66.13	1	10.50	15	
IS	402	Síglunes	-18.83	66.18	8	6.67	47	
IS	748	Skaftafell	-16.98	64.02	160	1.73	26	
IS	396	Skeiðsfoss	-19.02	66.00	84	16.19	7	
IS	807	Skógar	-19.50	63.53	36	2.62	31	
IS	510	Skoruvík	-14.77	66.35	13	3.22	17	
IS	388	Skriðuland	-19.12	65.77	150	5.11	17	
IS	445	Sólvangur	-17.87	65.77	120	7.32	8	
IS	473	Staðarhóll	-17.35	65.82	42	5.57	36	
IS	694	Stafafell	-14.87	64.42	45	1.78	7	
IS	108	Stafholtsey	-21.60	64.62	14	1.60	7	
IS	70	Stardalur	-21.48	64.22	185	5.57	34	
IS	815	Stórhöfði	-20.28	63.40	118	2.53	73	
IS	88	Stóri-Botn	-21.30	64.38	60	1.95	22	
IS	521	Strandhöfn	-14.65	65.90	20	4.96	16	
IS	178	Stykkishólmur	-22.73	65.08	21	2.67	55	
IS	248	Suðureyri	-23.53	66.13	3	7.53	38	
IS	463	Svartárkot	-17.25	65.33	405	7.53	7	
IS	675	Teigarhorn	-14.35	64.68	18	2.58	73	
IS	945	Þingvellir	-21.12	64.25	113	2.49	19	
IS	240	Þórustaðir	-23.47	66.02	20	7.59	55	
IS	519	Þorvaldsstaðir	-14.98	66.03	6	2.08	49	
IS	145	Þverholt	-22.15	64.58	30	1.60	18	
IS	409	Tjörn	-18.57	65.93	25	7.70	28	
IS	426	Torfufell	-18.27	65.32	215	4.27	21	
IS	735	Vagnsstaðir	-15.82	64.18	7	2.08	28	
IS	802	Vatnsskarðshólar	-19.18	63.42	20	3.13	32	
IS	932	Vegatunga	-20.50	64.18	100	2.40	13	
IS	798	Vík í Mýrdal	-19.02	63.42	15	6.35	44	
IS	525	Vopnafjörður	-14.83	65.75	21	2.62	18	
IT	Roma58	Abbadia S. Salvatore	11.72	42.88	829	1.03	41/70	
IT	Torino29	Acciglio Saretto	6.98	44.48	1540	8.05	64/90	
IT	Catanzaro83	Acerenza	15.98	40.80	833	1.65	50/90	
IT	Bari81	Adelfia	16.92	41.00	151	1.02	50/90	
IT	Palermo93	Aidone	14.50	37.42	909	0.55	60/90	
IT	Milano17	Alpe Cavalli	8.15	46.08	1510	10.45	40/70	
IT	Genova35	Alpicella	8.58	44.40	405	0.68	50/85	

IT	Catanzaro84	Anzi	15.97	40.52	1066	2.21	50/90	
IT	Pisa52	Arezzo	11.93	43.47	277	0.91	40/60	
IT	Bologna47	Ascoli Piceno	13.60	42.90	136	1.12	50/90	
IT	Napoli74	Avezzano	13.48	42.03	697	0.93	74/93	
IT	Roma57	Bagnara	12.90	43.12	620	2.25	41/70	
IT	Cagliari99	Baunei	9.72	40.05	480	0.38	57/70	
IT	Palermo92	Bivona	13.48	37.62	503	0.20	60/90	*
IT	Bologna43	Bologna	11.40	44.50	51	1.67	50/90	
IT	Pisa50	Boscolungo Abetone	10.72	44.13	1340	11.34	41/71	
IT	Bari79	Bovino	15.38	41.25	646	2.00	50/90	
IT	Palermo89	Caccamo	13.72	37.93	521	1.21	60/90	*
IT	Milano14	Cadarese	8.43	46.30	725	3.86	51/90	
IT	Pisa51	Camaldoli	11.87	43.80	1111	7.11	40/70	
IT	Bologna45	Campigna	11.80	43.87	1068	6.45	40/70	
IT	Milano16	Campliccioli	8.12	46.05	1310	11.09	40/70	
IT	Pescara67	Campo Imperatore	13.62	42.45	2125	14.14	40/70	
IT	Pescara65	Campo Tosto	13.42	42.55	1430	7.34	40/70	
IT	Bari80	Canosa	16.12	41.22	154	0.99	50/90	
IT	Napoli76	Cappadocia	13.32	42.02	1157	3.16	42/70	
IT	Roma60	Castelluccio di Norcia	13.25	42.83	1453	7.66	41/70	
IT	Pisa49	Castelnuovo Gar	10.47	44.12	276	1.14	40/90	
IT	Palermo95	Castelvechio Sic.	14.92	37.95	400	0.47	60/90	
IT	Torino25	Ceresole	7.28	45.43	1579	7.85	50/90	
IT	Torino23	Champoluc	7.78	45.83	1570	6.68	40/70	
IT	Genova37	Chiavari	9.37	44.32	5	0.24	50/90	
IT	Venezia1	Cividale	13.48	46.10	138	1.06	40/61	
IT	Milano13	Codogno	9.75	45.17	58	2.00	73/94	
IT	Venezia4	Coritis	13.43	46.35	641	3.91	40/61	
IT	Palermo91	Corleone	13.35	37.82	594	0.71	60/90	
IT	Torino21	Courmayeur	7.02	45.78	1220	7.13	40/70	
IT	Torino28	Crissolo	7.20	44.70	1410	7.38	40/70	
IT	Catanzaro87	Croceferrata	16.33	38.47	970	3.81	50/90	
IT	Bologna42	Diga Brasimone	11.17	44.12	830	4.39	40/70	
IT	Bologna40	Ferrara	11.67	44.83	15	0.83	50/90	
IT	Roma62	Filettino	13.37	41.88	1062	2.62	45/70	
IT	Palermo94	Floresta	14.97	37.98	1250	5.05	40/69	
IT	Venezia2	Forni Avoltri	12.83	46.58	888	4.01	40/61	
IT	Milano18	Forno	8.33	45.93	891	3.88	40/70	
IT	Pescara72	Gambatesa	14.97	41.52	468	1.68	74/90	
IT	Venezia7	Gares	11.93	46.30	1381	10.98	40/61	
IT	Genova36	Genova	8.98	44.40	2	0.67	50/90	
IT	Milano15	Goglio	8.32	46.30	1100	5.18	40/70	
IT	Torino24	Gressoney la Tr.	7.88	45.83	1631	6.94	40/70	
IT	Pescara71	Indiprete	14.38	41.55	640	1.93	74/90	
IT	Milano10	Lago Baitone	10.47	46.15	2258	22.94	40/70	
IT	Torino27	Lago della Rossa	7.20	45.27	2716	16.57	40/70	
IT	Pisa55	Livorno	10.35	43.55	3	0.60	40/90	
IT	Milano12	Lodi	9.55	45.32	80	1.19	51/90	
IT	Bari82	Massafra	17.17	40.58	116	0.54	50/90	
IT	Parma31	Mignano	9.85	44.78	342	1.90	50/90	
IT	Catanzaro85	Moliterno	15.92	40.23	879	1.15	50/90	
IT	Roma63	Monte Guadagnolo	12.98	41.92	1204	4.05	41/70	
IT	Roma61	Monte Terminillo	13.03	42.45	1750	14.09	55/70	
IT	Cagliari98	Montes	9.47	40.18	1060	2.43	57/71	
IT	Torino19	Oropa	8.02	45.63	1180	6.87	50/90	
IT	Roma59	Orvieto	12.03	42.72	315	0.24	41/70	*

IT	Cagliari97	Oschiri	9.15	40.72	202	0.57	57/70	
IT	Napoli73	Ovindoli	13.57	42.13	1375	8.30	42/70	
IT	Parma32	Parma	10.37	44.80	56	1.35	50/90	
IT	Genova39	Passo Cento Croci	9.67	44.42	1055	6.08	40/70	
IT	Venezia6	Passo Falzarego	12.10	46.52	1985	14.68	40/61	
IT	Milano9	Passo Tonale	10.62	46.25	1777	11.49	40/70	
IT	Parma34	Pavullo	10.88	44.35	682	3.88	50/90	
IT	Pescara66	Penne	13.97	42.47	438	1.31	74/90	
IT	Bologna46	Pesaro	12.95	43.92	11	1.07	50/70	
IT	Pescara69	Pescasseroli	13.83	41.80	1150	4.53	40/70	
IT	Pescara68	Pesco Costanzo	14.12	41.88	1395	6.85	40/70	
IT	Cagliari100	Pira de Onni	9.45	40.02	872	0.84	57/70	
IT	Pisa53	Pistoia	10.97	43.93	58	0.79	40/60	*
IT	Genova38	Pontremoli/S. Annunziata	9.93	44.37	215	1.12	50/90	*
IT	Bologna41	Porretta Terme	11.03	44.15	349	2.84	40/70	
IT	Torino22	Prè St. Didier	7.03	45.77	990	6.39	40/70	
IT	Bologna44	Ravenna	12.25	44.42	4	0.79	50/90	
IT	Pisa48	Retignano	10.32	44.00	440	0.80	40/90	
IT	Pisa56	Roccastrada	11.22	43.02	470	0.89	60/90	
IT	Torino26	Rosone	7.45	45.45	714	2.12	40/70	
IT	Napoli77	S. Angelo Fasanella	15.40	40.45	557	0.52	74/93	
IT	Palermo90	S. Giuseppe Jato	13.23	37.97	450	0.94	60/90	
IT	Milano11	S. Pellegrino	9.72	45.83	355	1.68	51/90	
IT	Bari78	S. Severo	15.43	41.68	87	0.74	50/90	
IT	Catanzaro88	S. Tommaso	16.43	39.08	820	1.63	50/90	
IT	Venezia5	Sappada	12.73	46.57	1217	9.15	40/61	
IT	Catanzaro86	Sculca	16.55	39.32	1358	5.45	42/69	
IT	Napoli75	Sepino	14.67	41.40	716	1.23	74/93	
IT	Cagliari96	Sorgono	9.15	40.03	687	0.29	57/70	*
IT	Pescara64	Teramo	13.75	42.67	300	0.86	74/90	
IT	Venezia8	Trafoi	10.55	46.55	1548	9.15	40/61	
IT	Parma33	Vedriano	10.45	44.52	590	2.53	50/90	*
IT	Torino20	Vercelli	8.42	45.33	135	0.91	50/74	*
IT	Pescara70	Villa S. Maria	14.40	41.95	330	1.67	74/90	
IT	Venezia3	Villa Santina	12.97	46.42	363	2.76	40/61	
IT	Pisa54	Volterra	10.90	43.40	536	1.06	40/90	
LU	590	LUXEMBOURG	6.12	49.37	376	0.60	12	
NL	260	DE BILT	5.18	52.10	2	0.26	36	
NL	235	DE KOOY	4.78	52.92	4	0.21	36	
NL	275	DEELEN	5.88	52.07	50	0.26	36	
NL	280	EELDE	6.58	53.12	3	0.34	36	
NL	370	EINDHOVEN	5.42	51.45	20	0.23	36	
NL	350	GILZE-RIJEN	4.93	51.57	0	0.29	36	
NL	270	LEEWARDEN	5.75	53.22	1	0.34	36	
NL	380	MAASTRICHT	5.78	50.92	126	0.33	35	
NL	344	ROTTERDAM	4.43	51.95	-5	0.35	10	
NL	240	SCHIPHOL	4.77	52.30	-4	0.30	7	
NL	265	SOESTERBERG	5.27	52.13	0	0.34	36	
NL	290	TWENTHE	6.90	52.27	34	0.31	36	
NL	210	VALKENBURG	4.42	52.18	0	0.23	36	
NL	310	VLISSINGEN	3.60	51.45	8	0.20	36	
NL	375	VOLKEL	5.70	51.65	21	0.29	36	
NO	23160	ÅBJØRSBRÅTEN	9.29	60.92	639	2.90	-	
NO	25320	ÅL III	8.57	60.64	706	3.20	-	
NO	60970	ÅLESUND III	6.20	62.48	136	3.10	-	
NO	57940	ÅLFOTEN	5.67	61.83	24	3.30	-	

NO	86950	ALSVÅG I VESTERÅLEN II	15.21	68.91	18	3.80	-	
NO	18250	ALUNSJØEN	10.86	59.97	236	3.60	-	
NO	8850	ALVDAL	10.78	62.03	485	1.80	-	
NO	33450	ÅMOT	7.97	59.57	551	4.80	-	
NO	61350	ÅNDALSNES	7.68	62.57	20	5.20	-	
NO	63580	ÅNGÅRDSVATNET	9.20	62.67	596	5.10	-	
NO	84450	ANKENES	17.41	68.38	249	4.10	-	
NO	17850	ÅS	10.78	59.67	95	3.00	-	
NO	35180	ÅSBØ	8.97	58.88	243	5.40	-	
NO	41480	ÅSERAL	7.42	58.62	278	5.20	-	
NO	24100	ASK PÅ RINGERIKE	10.18	60.14	77	1.90	-	
NO	19710	ASKER	10.44	59.86	163	4.40	-	
NO	8720	ATNASJØ	10.14	61.89	749	2.40	-	
NO	68420	AUNET	11.57	63.06	302	3.50	-	
NO	53700	AURLAND	7.20	60.90	15	1.20	-	
NO	63300	AURSJØEN	8.57	62.40	869	4.80	-	
NO	10600	AURSUND	11.45	62.67	685	5.00	-	
NO	21670	AUST-TORPA	10.12	60.93	485	3.80	-	
NO	25540	BAKKO I HOL	8.01	60.68	969	5.30	-	
NO	72250	BANGDALEN	11.54	64.33	62	4.90	-	
NO	86850	BARKESTAD	14.80	68.82	3	3.50	-	
NO	3200	BATERØD	11.13	59.31	31	2.10	-	
NO	81100	BEIARN	14.58	67.00	5	3.90	-	
NO	23560	BEITO	8.86	61.24	754	3.80	-	
NO	70910	BERG	12.42	64.25	127	3.80	-	
NO	30860	BERGELIGREND	9.06	59.89	514	3.50	-	
NO	11190	BERGER BRUK	11.12	60.27	190	4.40	-	
NO	66710	BERKÅK	10.02	62.83	441	5.10	-	
NO	71900	BESSAKER	10.33	64.25	12	1.70	-	
NO	30330	BESSTUL I GJERPEN	9.54	59.45	460	6.30	-	
NO	11900	BIRI	10.60	60.95	190	3.40	-	
NO	40900	BJÅEN	7.44	59.64	927	5.90	-	
NO	45600	BJØRHEIM/RYFYLKE	6.03	59.08	64	1.30	-	
NO	84070	BJØRKÅSEN	16.79	68.32	80	4.90	-	
NO	55430	BJØRKEHAUG I JOSTEDAL	7.27	61.64	324	8.90	-	
NO	2610	BJØRKELANGEN	11.57	59.89	135	2.70	-	
NO	13870	BJØRNHØLEN	9.07	61.36	1024	3.90	-	
NO	18500	BJØRNHOLT	10.69	60.05	360	6.00	-	
NO	99450	BJØRNSUND	30.07	69.45	28	2.40	-	
NO	9870	BLANKTJERNMOEN I KVIKNE	10.42	62.43	690	1.70	-	
NO	18700	BLINDERN	10.72	59.94	94	2.20	-	
NO	82290	BODØ	14.43	67.27	11	2.50	-	
NO	79800	BOLNA	15.23	66.50	549	5.80	-	
NO	48750	BONDHUS	6.28	60.12	37	1.70	-	
NO	88100	BONES	18.25	68.65	230	6.00	-	
NO	87350	BORKENES	16.19	68.77	36	4.30	-	
NO	54500	BORLO	7.96	61.07	502	1.70	-	
NO	27140	BORREVANNET	10.44	59.42	12	5.40	-	
NO	37570	BORSÆ	7.83	59.38	740	7.70	-	
NO	95600	BØRSELV	25.55	70.32	10	2.40	-	
NO	48160	BØRTVEIT	5.53	59.89	4	1.80	-	
NO	57480	BOTNEN/FØRDE	6.06	61.54	237	7.50	-	
NO	15430	BØVERDAL	8.24	61.72	701	2.40	-	
NO	15720	BRÅTÅ	7.86	61.91	712	3.80	-	
NO	52930	BREKKE	5.43	60.96	240	4.80	-	
NO	1400	BREKKE SLUSE	11.56	59.15	114	2.50	-	

NO	10750	BREKKEBYGD	11.88	62.65	712	2.80	-	
NO	51400	BREKKHUS	6.14	60.74	202	6.00	-	
NO	95430	BRENNELV	25.12	70.07	35	1.80	-	
NO	58480	BRIKSDAL	6.81	61.69	40	2.10	-	
NO	76320	BRØNNØYSUND III	12.22	65.47	5	2.80	-	
NO	60900	BRUSDALSVANN	6.47	62.47	188	7.50	-	
NO	18200	BRYN	10.82	59.92	93	2.60	-	
NO	99150	BUGØYFJORD	29.42	69.85	8	2.30	-	
NO	56440	BULANDET	4.63	61.28	4	1.20	-	
NO	51470	BULKEN	6.22	60.65	323	4.30	-	
NO	69960	BURAN	11.55	63.72	182	2.80	-	
NO	30870	BUSNESGREND	8.99	59.80	397	4.50	-	
NO	13900	BYGDIN	8.80	61.33	1055	7.00	-	
NO	68000	BYNESET	10.12	63.39	98	3.90	-	
NO	97350	CUOVDDATMOHKKI	24.43	69.37	286	2.00	-	
NO	56650	DALE I SUNNFJORD II	5.40	61.35	51	3.60	-	
NO	19750	DIKEMARK	10.38	59.80	180	5.90	-	
NO	89950	DIVIDALEN	19.71	68.78	228	1.20	-	
NO	19480	DØNSKI	10.50	59.90	59	3.10	-	
NO	38380	DOVLAND	8.04	58.52	259	4.50	-	
NO	83700	DRAG	16.03	68.05	60	3.60	-	
NO	34600	DRANGEDAL	9.07	59.10	82	3.90	-	
NO	78100	DREVJA	13.42	66.00	63	5.80	-	
NO	700	DREVSJØ	12.05	61.89	672	2.60	-	
NO	17750	DRØBAK	10.63	59.67	85	4.60	-	
NO	79740	DUNDERLANDSDALEN	14.91	66.51	154	6.90	-	
NO	35080	EGELANDS VERK	9.12	58.80	46	5.20	-	
NO	26370	EGGEDAL	9.35	60.25	271	3.80	-	
NO	20360	EGGEMOEN	10.32	60.20	192	2.80	-	
NO	62900	EIDE	7.39	62.89	49	4.50	-	
NO	3410	EIDSBERG II	11.28	59.50	141	3.30	-	
NO	11120	EIDSVOLL VERK	11.16	60.30	181	3.80	-	
NO	57680	EIKEFJORD	5.47	61.59	30	2.80	-	
NO	47820	EIKEMO	6.28	59.86	178	4.30	-	
NO	61850	EIKESDAL	8.18	62.47	39	3.30	-	
NO	11710	EINAVATN	10.64	60.60	406	3.80	-	
NO	98700	EKKERØY	30.10	70.08	6	3.60	-	
NO	52170	EKSINGEDAL	6.15	60.80	450	8.50	-	
NO	770	ELLEFSPLASS	11.45	62.20	713	2.70	-	
NO	67450	ENDALSVOLD	10.45	62.82	606	4.80	-	
NO	4050	ENEBAKK	11.14	59.76	163	3.90	-	
NO	61820	ERESFJORD	8.11	62.66	14	5.10	-	
NO	87550	ERVIK	16.49	68.83	14	6.10	-	
NO	13700	ESPEDALEN	9.53	61.42	752	3.10	-	
NO	47500	ETNE	5.97	59.66	35	1.70	-	
NO	87790	EVENSKJÆR	16.58	68.58	7	4.60	-	
NO	50450	FANA - STEND	5.33	60.27	54	1.40	-	
NO	50460	FANA FORSØKSSTASJON	5.35	60.26	48	1.80	-	
NO	62150	FANNEFJORDEN	7.72	62.82	123	7.70	-	
NO	34400	FARSJØ	9.31	58.97	48	4.90	-	
NO	42250	FEDEFJORDEN	6.82	58.28	26	2.10	-	
NO	6460	FINNSKOG I	12.38	60.70	220	2.10	-	
NO	7900	FINSTAD	11.05	62.10	513	2.00	-	
NO	77500	FIPLINGDAL	13.67	65.42	381	8.90	-	
NO	45900	FISTER	6.07	59.18	1	1.20	-	
NO	48260	FITJAR	5.32	59.92	20	1.20	-	

NO	55840	FJÆRLAND - SKARESTAD	6.77	61.44	10	5.70	-	
NO	37300	FJALESTAD	8.40	59.16	344	4.90	-	
NO	52110	FJELLANGER	6.07	60.80	456	10.10	-	
NO	36500	FLATENFOSS	8.68	58.63	130	5.70	-	
NO	42650	FLEKKEFJORD	6.65	58.28	5	2.40	-	
NO	50500	FLESLAND	5.23	60.29	48	1.50	-	
NO	6040	FLISA	12.02	60.62	184	2.60	-	
NO	11140	FLØGSTAD	11.15	60.22	194	3.80	-	
NO	21240	FLUBERG - RØEN	10.20	60.78	159	3.10	-	
NO	16610	FOKSTUA II	9.29	62.11	972	1.50	-	
NO	9100	FOLLDAL	10.05	62.13	709	1.10	-	
NO	19400	FORNEBU	10.62	59.89	10	2.40	-	
NO	55160	FORTUN	7.70	61.50	27	2.40	-	
NO	51100	FOSSE I BERGSDAL	5.89	60.58	405	7.00	-	
NO	54670	FOSSEBAKKEN	8.08	61.18	945	4.00	-	
NO	26160	FOSSUM	9.87	59.90	105	3.30	-	
NO	50560	FREDRIKSBERG	5.32	60.40	41	1.40	-	
NO	52750	FRØYSET	5.22	60.85	13	1.80	-	
NO	31500	FRØYSTUL	8.35	59.83	870	5.10	-	
NO	4730	FURUSMO	11.11	60.16	200	4.50	-	
NO	37750	FYRESDAL	8.04	59.17	315	3.50	-	
NO	37800	FYRESDAL I LAUVDAL	8.12	59.18	499	5.10	-	
NO	4780	GARDERMOEN	11.08	60.21	202	4.40	-	
NO	56800	GAULAR	5.80	61.33	79	2.40	-	
NO	87750	GAUSVIK	16.49	68.61	7	4.90	-	
NO	25640	GEILO	8.16	60.53	841	4.20	-	
NO	25590	GEILO - GEILOSTØLEN	8.20	60.52	810	4.20	-	
NO	15540	GEILO/SJÅK	8.45	61.87	378	1.10	-	
NO	60300	GEIRANGER	7.24	62.08	419	9.40	-	
NO	88900	GIBOSTAD	18.07	69.35	12	5.10	-	
NO	61150	GJERMUNDNES	7.17	62.62	49	3.50	-	
NO	36900	GJEVDELI	8.18	58.97	482	6.60	-	
NO	600	GLØTVODA	11.85	61.84	696	2.50	-	
NO	81750	GRADDIS FJELLSTUE	15.75	66.75	429	3.90	-	
NO	49940	GRANVIN	6.81	60.59	352	7.00	-	
NO	87940	GRATANGEN III	17.42	68.69	16	4.50	-	
NO	24600	GRIMELI	9.60	60.14	367	4.20	-	
NO	56160	GRIMSOSEN/HØYANGER	6.05	61.22	584	10.60	-	
NO	15910	GROTLI	7.63	62.02	906	3.40	-	
NO	14710	GROV	9.02	61.81	808	2.20	-	
NO	52220	GULLBRÅ	6.25	60.83	579	7.50	-	
NO	24770	GULSVIK IV	9.57	60.39	149	3.10	-	
NO	32100	GVARV	9.18	59.38	26	2.80	-	
NO	55550	HAFSLO	7.19	61.29	246	4.50	-	
NO	26670	HAKAVIK	9.95	59.63	21	4.50	-	
NO	18550	HAKLOA	10.67	60.11	389	4.60	-	
NO	64460	HALSAFJORD II	8.24	62.98	12	5.40	-	
NO	94260	HAMMERFEST RADIO	23.67	70.68	69	5.60	-	
NO	50150	HATLESTRAND	5.91	60.04	45	1.50	-	
NO	77650	HATTFJELLDAL	14.03	65.62	380	6.70	-	
NO	4710	HAUG	11.15	60.15	191	3.50	-	
NO	25730	HAUGASTØL	7.87	60.52	988	4.50	-	
NO	7010	HAUGEDALSHØGDA	13.09	61.16	240	3.80	-	
NO	47400	HAUGESUND	5.32	59.43	82	2.10	-	
NO	56960	HAUKEDAL	6.38	61.42	329	7.30	-	
NO	52600	HAUKELAND	5.57	60.82	196	4.50	-	

NO	22730	HEDAL I VALDRES	9.73	60.62	480	3.50	-	
NO	27800	HEDRUM	9.97	59.20	31	3.90	-	
NO	18400	HEFTYELØKKEN	10.77	59.93	90	3.80	-	
NO	19350	HEGGELIA	10.48	60.08	520	4.90	-	
NO	420	HEGGERISET - NORDSTRAND	12.00	61.69	481	2.40	-	
NO	82160	HEGGMOEN VED BODØ	14.86	67.36	24	4.50	-	
NO	44520	HELLAND	6.01	58.76	280	1.50	-	
NO	43450	HELLELAND	6.17	58.54	94	1.80	-	
NO	91470	HELLIGSKOGEN	20.75	69.17	475	2.90	-	
NO	65220	HEMNE	9.00	63.26	133	4.10	-	
NO	25080	HEMSEDAL	8.57	60.87	608	2.80	-	
NO	52430	HERDLA	5.07	60.60	24	1.50	-	
NO	38450	HEREFOSS	8.35	58.52	85	4.30	-	
NO	26240	HIÅSEN I SIGDAL	9.51	60.01	402	4.70	-	
NO	65600	HITRA	8.74	63.62	23	2.10	-	
NO	11080	HJÆRA	11.21	60.28	178	3.50	-	
NO	31850	HJARTDAL	8.71	59.60	162	3.80	-	
NO	44160	HOGNESTAD	5.56	58.70	19	1.20	-	
NO	20250	HOLE	10.30	60.11	66	1.40	-	
NO	66250	HØLONDA	10.02	63.12	360	4.40	-	
NO	7750	HORNSET	11.13	61.80	278	2.20	-	
NO	66210	HOSTON	9.60	63.18	203	5.60	-	
NO	32900	HØVDALSMO	8.21	59.50	572	4.50	-	
NO	56520	HØVLANDSDAL	5.43	61.23	89	2.80	-	
NO	56120	HØYANGSHÅLAND	6.09	61.23	243	4.80	-	
NO	32780	HØYDALEN I SOLUM	9.27	59.14	113	5.10	-	
NO	72850	HØYLANDET	12.27	64.60	22	5.40	-	
NO	46850	HUNDSEID I VIKEDAL	6.00	59.57	159	4.30	-	
NO	62700	HUSTADVATN	7.25	62.91	80	3.50	-	
NO	1080	HVALER	11.05	59.04	17	2.10	-	
NO	49300	HVAM	11.38	60.10	162	2.40	-	
NO	40140	HYLESTAD-BROKKE	7.50	59.10	443	5.40	-	
NO	3780	IGISI I HOBØL	11.05	59.64	144	3.50	-	
NO	47900	INDRE MATRE	6.00	59.85	24	2.50	-	
NO	64700	INNERDAL	8.79	62.72	403	11.60	-	
NO	89650	INNSET	18.82	68.66	314	4.00	-	
NO	58400	INNVIK	6.63	61.85	32	2.50	-	
NO	17290	JELØY RADIO	10.59	59.44	12	2.80	-	
NO	11240	JEPPEDALEN	10.92	60.38	480	6.60	-	
NO	34120	JOMFRULAND FYR	9.60	58.87	12	3.50	-	
NO	12200	JØNSBERG LANDBRUKSSKOLE	11.21	60.75	218	2.20	-	
NO	49250	JØSENDAL	6.58	59.93	345	6.20	-	
NO	43090	JØSSINGFJORD	6.36	58.33	136	3.00	-	
NO	55450	JOSTEDAL	7.33	61.67	370	8.80	-	
NO	93500	JOTKAJAVRE	23.93	69.75	389	2.90	-	
NO	60600	KALDHUSSETER	7.43	62.15	580	5.90	-	
NO	19550	KAMPSETER I HOLE	10.45	60.03	406	5.60	-	
NO	85070	KANSTADBON III	15.88	68.50	9	8.00	-	
NO	77300	KAPSKARMO	13.40	65.42	134	6.60	-	
NO	97250	KARASJOK	25.51	69.47	129	1.50	-	
NO	18600	KATNOSA	10.60	60.15	464	4.90	-	
NO	97310	KAUTOKEINO	23.03	69.02	330	1.50	-	
NO	37650	KILEGREND	8.28	59.01	287	4.10	-	
NO	22360	KILLINGSTRØMMEN	10.09	60.35	157	3.90	-	
NO	49550	KINSARVIK	6.74	60.37	108	1.70	-	
NO	12550	KISE	10.80	60.77	128	2.40	-	



NO	94890	KISTRAND	25.22	70.45	12	3.60	-	
NO	19100	KJELSÅS I SØRKEDALEN	10.60	60.04	319	5.40	-	
NO	82540	KJERRINGØY	14.87	67.53	12	1.70	-	
NO	39040	KJEVIK	8.07	58.20	12	3.90	-	
NO	70850	KJØBLI	12.48	64.16	195	3.50	-	
NO	83900	KJØPSVIK	16.37	68.10	38	3.00	-	
NO	68260	KLÆBU	10.47	63.30	143	3.90	-	
NO	86520	KLEIVA I SORTLAND	15.29	68.65	23	5.10	-	
NO	28360	KONGSBERG	9.65	59.67	171	3.80	-	
NO	98250	KONGSFJORD	29.05	70.60	160	4.70	-	
NO	41660	KONSMO - EIKELAND	7.32	58.25	260	4.90	-	
NO	69470	KOPPERÅ	11.84	63.40	294	5.80	-	
NO	78410	KORGEN	13.83	66.08	10	4.30	-	
NO	83500	KRÅKMO	15.99	67.79	76	3.10	-	
NO	39170	KRISTIANSAND	7.98	58.17	22	4.60	-	
NO	64260	KRISTIANSUND	7.75	63.12	48	2.10	-	
NO	78710	KRUTÅ FJELLSTUE	14.50	65.68	594	11.70	-	
NO	95950	KUNES	26.53	70.35	21	2.50	-	
NO	86260	KVALNES	13.97	68.35	10	1.80	-	
NO	50300	KVAMSKOGEN	5.91	60.39	408	9.40	-	
NO	69650	KVARME	10.77	63.58	25	2.80	-	
NO	91330	KVESMENES - RYENG	19.98	69.25	37	3.30	-	
NO	66850	KVIKNE	10.27	62.60	550	2.50	-	
NO	41880	KVINESDAL	7.05	58.30	343	4.60	-	
NO	38140	LANDVIK	8.52	58.33	6	3.90	-	
NO	4810	LANGEMO	11.22	60.15	205	4.30	-	
NO	900	LANGEN	11.85	62.43	685	2.70	-	
NO	90490	LANGNES	18.91	69.68	8	4.90	-	
NO	56320	LAVIK	5.55	61.11	31	2.50	-	
NO	96210	LEBESBY	27.02	70.57	8	2.80	-	
NO	55780	LEIKANGER	6.87	61.18	53	2.10	-	
NO	67150	LEINSTRAND	10.27	63.33	13	2.50	-	
NO	78250	LEIRFJORD	12.92	66.07	53	4.20	-	
NO	85540	LEKNES I LOFOTEN	13.61	68.14	11	3.30	-	
NO	61770	LESJASKOG	8.37	62.23	621	3.20	-	
NO	97080	LEVAJOK-EVJEN	26.42	69.90	112	1.60	-	
NO	11160	LI	11.18	60.18	216	4.60	-	
NO	75100	LIAFOSS	11.96	64.84	44	5.40	-	
NO	68330	LIEN	11.12	63.21	255	4.50	-	
NO	32200	LIFJELL	9.04	59.46	354	4.80	-	
NO	12640	LILLEHAMMER	10.48	61.08	271	3.30	-	
NO	74150	LIMINGEN	13.55	64.88	426	8.90	-	
NO	60	LINNES	12.49	61.56	564	3.60	-	
NO	47600	LITLEDAL	6.07	59.66	83	1.70	-	
NO	66190	LØFTEN	9.80	63.19	160	4.30	-	
NO	4720	LØKEN	11.05	60.13	175	4.70	-	
NO	23500	LØKEN I VOLBU	9.07	61.12	525	2.90	-	
NO	68270	LØKSMYR	10.44	63.24	165	4.30	-	
NO	15060	LOM	8.57	61.84	382	1.20	-	
NO	7550	LØSSET	11.38	61.37	262	3.50	-	
NO	67200	LUNDAMO	10.32	63.15	50	3.80	-	
NO	22600	LUNDE I ÅDAL	10.02	60.55	167	3.30	-	
NO	20520	LUNNER	10.58	60.29	372	4.20	-	
NO	80200	LURØY	13.19	66.39	115	3.30	-	
NO	55350	LUSTER SANATORIUM	7.42	61.43	484	6.70	-	
NO	11200	LYBEKBRÅTEN	11.08	60.25	197	5.10	-	

NO	28800	LYNGDAL I NUMEDAL	9.53	59.91	288	3.80	-	
NO	91230	LYNGSEIDE	20.23	69.58	4	4.20	-	
NO	45350	LYSEBOTN	6.65	59.06	9	1.30	-	
NO	45200	LYSEFJORDEN	6.43	59.02	4	1.30	-	
NO	71800	MÅMYR	10.52	64.08	250	7.70	-	
NO	41110	MANDAL	7.46	58.05	138	4.30	-	
NO	61250	MÅNDALEN I ROMSDAL	7.35	62.50	200	5.80	-	
NO	18450	MARIDALSOSET	10.79	59.97	173	3.80	-	
NO	54600	MARISTOVA	8.04	61.11	806	3.60	-	
NO	52700	MASFJORDEN	5.63	60.92	357	5.60	-	
NO	52650	MATRE	5.58	60.88	18	2.10	-	
NO	43810	MAUDAL	6.37	58.77	311	4.30	-	
NO	5800	MEDALEN	12.36	60.39	293	2.90	-	
NO	12800	MESNA - TYRIA	10.68	61.11	520	4.50	-	
NO	39920	MESTAD I ODDERNES	7.89	58.22	151	5.30	-	
NO	90080	MESTERVIK	18.89	69.33	22	4.20	-	
NO	79480	MO I RANA	14.16	66.31	51	4.10	-	
NO	52300	MODALEN	5.93	60.83	104	4.50	-	
NO	26480	MODUM	9.90	59.88	58	3.50	-	
NO	89150	MOEN I MÅLSELV	18.62	69.13	11	5.30	-	
NO	31660	MOGAN	7.91	60.02	954	5.50	-	
NO	77190	MOSJØEN - MOSAL	13.20	65.85	4	3.40	-	
NO	17250	MOSS	10.67	59.43	31	3.10	-	
NO	31610	MØSSTRAND	8.07	59.85	948	4.70	-	
NO	38600	MYKLAND	8.28	58.63	245	4.80	-	
NO	30220	MYKLE	9.70	59.42	430	6.40	-	
NO	58320	MYKLEBUST I BREIM	6.62	61.71	315	3.00	-	
NO	53410	MYRDAL IV	7.12	60.74	855	9.20	-	
NO	72100	NAMDALSEID	11.20	64.25	86	4.80	-	
NO	74800	NAMSVATN	13.59	64.99	498	7.50	-	
NO	4760	NANNESTAD PRESTEGÅRD	11.02	60.22	199	4.70	-	
NO	84790	NARVIK	17.50	68.47	32	5.00	-	
NO	54610	NEDRE SMEDDALSVATN	8.02	61.13	914	4.90	-	
NO	47020	NEDSTRAND	5.80	59.35	10	1.50	-	
NO	79400	NERDAL	13.98	66.27	31	4.80	-	
NO	66580	NERSKOGEN II	9.57	62.77	803	4.50	-	
NO	12520	NES	10.96	60.79	205	2.20	-	
NO	24870	NESBYEN	9.13	60.57	165	1.90	-	
NO	22950	NORD-AURDAL	9.42	60.92	452	2.70	-	
NO	5350	NORD-ODAL	11.56	60.39	147	3.20	-	
NO	79650	NORD RANA	14.27	66.42	250	9.50	-	
NO	60400	NORDDAL	7.24	62.25	28	3.50	-	
NO	80400	NORDFJORDNES	13.48	66.57	14	3.90	-	
NO	73490	NORDLI-BRATTVOLD	13.72	64.45	462	4.00	-	
NO	7570	NORDRE LØSSET	11.37	61.39	256	3.10	-	
NO	5380	NORDRE RASEN	11.52	60.55	252	2.50	-	
NO	91760	NORDREISA	21.02	69.74	1	4.50	-	
NO	18160	NORDSTRAND	10.79	59.87	118	2.90	-	
NO	92350	NORDSTRAUM	21.88	69.83	6	3.10	-	
NO	30530	NOTODDEN	9.26	59.55	34	3.00	-	
NO	21360	ODNES	10.12	60.80	156	3.10	-	
NO	63100	ØKSENDAL	8.42	62.69	47	4.60	-	
NO	76100	ØKSNINGØY	12.37	65.12	17	2.60	-	
NO	13640	OLSTAPPEN	9.41	61.51	687	2.20	-	
NO	50130	OMASTRAND	5.98	60.22	2	2.10	-	
NO	58700	OPPSTRYN	7.23	61.93	201	7.00	-	

NO	6550	ØRBEKKEDALEN	11.89	61.05	513	4.10	-	
NO	1950	ØRJE	11.65	59.48	123	3.10	-	
NO	71550	ØRLAND III	9.60	63.70	10	3.50	-	
NO	43540	ØRSDALEN	6.35	58.68	70	1.80	-	
NO	60800	ØRSKOG	6.82	62.48	4	4.90	-	
NO	10100	OS	11.02	62.52	788	2.50	-	
NO	63250	OSBU	8.47	62.52	801	6.50	-	
NO	7360	OSDALEN - BEKKEN	11.68	61.50	530	3.30	-	
NO	7030	OSFALLET	11.50	61.20	248	2.60	-	
NO	57110	OSLAND VED STONGFJORDEN	5.22	61.43	100	2.50	-	
NO	7250	OSSJØEN	11.75	61.25	450	3.20	-	
NO	69550	ØSTÅS I HEGRA	11.36	63.49	175	6.00	-	
NO	18050	ØSTMARKA	10.87	59.87	165	3.50	-	
NO	36100	ØSTRE MOLAND	8.75	58.48	40	5.60	-	
NO	11500	ØSTRE TOTEN	10.87	60.70	264	2.80	-	
NO	7720	ØTTÅSEN	11.15	61.73	459	2.40	-	
NO	89800	ØVERBYGD	19.28	69.02	78	3.90	-	
NO	72700	OVERHALLA	11.93	64.50	15	5.20	-	
NO	68200	ØVRE LEIRFOSS	10.40	63.37	70	4.30	-	
NO	7800	ØVRE RENDAL	11.08	61.88	303	1.30	-	
NO	42950	ØVRE SIRDAL	6.92	58.95	582	6.60	-	
NO	54660	ØVRE SMEDDALSVATN	8.05	61.17	932	3.40	-	
NO	14690	ØVRE TESSA	8.96	61.82	746	2.20	-	
NO	51250	ØVSTEDAL	5.96	60.69	316	8.00	-	
NO	21870	ØYEN	9.57	61.00	489	3.30	-	
NO	29450	ØYGARDSGREND	8.93	60.32	737	3.60	-	
NO	50090	ØYSTESE - MO	6.18	60.38	68	4.90	-	
NO	99530	PASVIK	29.25	69.16	54	1.70	-	
NO	100	PLASSEN	12.51	61.14	333	3.20	-	
NO	94130	PORSA	23.63	70.40	38	5.10	-	
NO	34900	POSTMYR I DRANGEDAL	8.78	59.26	464	6.20	-	
NO	1130	PRESTEBAKKE	11.54	58.99	157	3.00	-	
NO	14550	PRESTSTULEN	9.01	61.92	823	3.80	-	
NO	91950	PUNASTILLA	21.47	69.50	98	2.80	-	
NO	27300	RAMNES	10.25	59.36	44	4.80	-	
NO	4850	RÅNÅSFOSS	11.33	60.03	134	4.40	-	
NO	33250	RAULAND	8.04	59.70	715	4.50	-	
NO	36300	REIERSØL	8.62	58.47	42	4.80	-	
NO	51670	REIMEGREND	6.74	60.69	590	6.70	-	
NO	22840	REINLI	9.49	60.84	628	3.60	-	
NO	31940	REISJÅ I TUDDAL	8.70	59.79	686	5.00	-	
NO	66600	RENNEBU	9.83	62.87	360	4.90	-	
NO	94800	REPVÅG	25.62	70.77	3	3.80	-	
NO	64900	RINDAL	9.22	63.04	231	5.20	-	
NO	42520	RISNES I FJOTLAND	6.95	58.66	348	4.10	-	
NO	71350	RISSA	10.13	63.64	30	5.80	-	
NO	11350	ROGNLIEN	10.98	60.49	394	5.30	-	
NO	46450	RØLDAL	6.83	59.83	393	5.70	-	
NO	10400	RØROS	11.38	62.57	628	2.60	-	
NO	56280	RØRVIKVATN VED VADHEIM	5.75	61.22	350	6.70	-	
NO	67540	RØSBJØRGEN	10.52	62.99	330	5.90	-	
NO	48500	ROSENDAL	6.03	59.99	54	1.30	-	
NO	78850	RØSSVATN - HEGGEMO	14.27	65.91	399	7.70	-	
NO	27070	ROVE	10.30	59.49	79	4.50	-	
NO	4770	RUD I BJØRKE	11.02	60.25	199	4.20	-	
NO	6490	RUNDBERGET	12.09	60.82	347	3.50	-	

NO	96800	RUSTEFJELLBMA	28.20	70.40	9	3.00	-	
NO	17150	RYGGE	10.79	59.38	40	2.80	-	
NO	32420	SÆLI II	8.42	59.55	614	4.80	-	
NO	66830	SÆTER I KVIKNE	10.25	62.62	550	2.60	-	
NO	89500	SÆTERMOEN II	18.34	68.86	114	5.60	-	
NO	5050	SAGSTUA VED ÅRNES	11.58	60.10	191	2.40	-	
NO	50350	SAMNANGER	5.89	60.46	370	8.60	-	
NO	46150	SAND	6.28	59.48	25	2.10	-	
NO	11130	SANDBAKKEN	11.18	60.22	198	3.80	-	
NO	19450	SANDVIKA	10.53	59.88	2	3.30	-	
NO	46610	SAUDA	6.36	59.65	5	3.80	-	
NO	71150	SELAVATN	10.87	63.99	296	8.60	-	
NO	68300	SELBU	11.12	63.20	197	4.10	-	
NO	11110	SESSVOLL	11.17	60.25	198	4.70	-	
NO	86450	SIGERFJORD II	15.60	68.62	9	4.60	-	
NO	93900	SIHCAJAVRI	23.53	68.75	382	1.80	-	
NO	58880	SINDRE	6.54	61.92	118	4.90	-	
NO	96970	SIRBMA	27.41	70.02	51	1.50	-	
NO	12940	SJUSJØEN	10.72	61.15	860	6.30	-	
NO	13670	SKÅBU - STORSLÅEN	9.38	61.52	890	3.00	-	
NO	94180	SKAIDI	24.51	70.43	62	4.00	-	
NO	76500	SKÅLVÆR	12.18	65.87	6	2.50	-	
NO	67030	SKAUN	10.05	63.25	127	4.10	-	
NO	4280	SKEDSMO	11.05	60.00	184	3.50	-	
NO	91350	SKIBOTN	20.30	69.38	46	1.60	-	
NO	70480	SKJÆKFERFOSSEN	12.02	63.84	110	5.60	-	
NO	15660	SKJÅK	8.17	61.90	432	1.40	-	
NO	49390	SKJEGGEDAL II	6.63	60.12	417	4.90	-	
NO	66070	SKJENALDSFOSSEN	9.75	63.30	84	6.00	-	
NO	84200	SKJOMEN	17.55	68.18	56	1.70	-	
NO	60830	SKODJE	6.68	62.50	26	4.60	-	
NO	95270	SKOGANVARRE	25.09	69.84	74	2.20	-	
NO	99500	SKOGFOSS	29.69	69.37	55	1.80	-	
NO	42890	SKREÅDALEN	6.72	58.82	474	6.90	-	
NO	85380	SKROVA FYR	14.65	68.15	13	3.60	-	
NO	47190	SKUDENES	5.27	59.15	2	1.40	-	
NO	85950	SKUMVÆR FYR	11.88	67.42	18	1.20	-	
NO	96400	SLETNES FYR	28.22	71.08	8	3.20	-	
NO	54800	SLETTERUST I ÅRDAL	8.05	61.27	1058	4.60	-	
NO	71370	SLIPER	10.18	63.64	158	6.20	-	
NO	54640	SLUTEBRUI	8.02	61.17	932	4.00	-	
NO	18850	SMESTAD II	10.68	59.93	53	2.50	-	
NO	85150	SNEISA I LØDDINGEN	15.75	68.40	7	5.60	-	
NO	55730	SOGNDAL-SELSENG	6.93	61.33	421	7.40	-	
NO	66110	SOGNLI	9.65	63.33	309	9.70	-	
NO	24210	SOKNA	9.93	60.24	140	3.50	-	
NO	44560	SOLA	5.64	58.88	7	1.20	-	
NO	57640	SOLHEIM	5.72	61.63	177	4.60	-	
NO	8710	SØR-NESSET	10.15	61.89	739	2.40	-	
NO	83870	SØRFJORDVATN	16.67	68.07	61	4.80	-	
NO	82850	SØRFOLD	15.48	67.53	21	3.60	-	
NO	19050	SØRKEDALEN	10.63	60.00	170	4.40	-	
NO	73250	SØRLI	13.77	64.24	370	4.30	-	
NO	65270	SØVATNET	9.35	63.23	306	6.90	-	
NO	44480	SØYLAND	5.99	58.68	263	2.50	-	
NO	13300	SPRANGRUDLIEN	10.30	61.47	755	2.40	-	

NO	24960	STAKE	8.95	60.72	542	2.40	-	
NO	12090	STAUR FORSØKSGÅRD	11.10	60.73	153	2.30	-	
NO	83300	STEIGEN	15.12	67.92	26	2.60	-	
NO	57080	STONGFJORDEN	5.17	61.43	3	2.10	-	
NO	67260	STØREN	10.28	63.03	82	3.80	-	
NO	92450	STORENG	22.03	70.00	33	4.50	-	
NO	19200	STORFLÅTAN I NORDMARKA	10.48	60.13	462	4.70	-	
NO	90200	STORSTEINNES I BALSFJORD	19.23	69.25	27	5.10	-	
NO	19600	STOVI	10.46	59.91	117	4.50	-	
NO	60200	STRANDA - HELSEM	6.80	62.30	84	3.90	-	
NO	16720	STRANDHEIM	9.05	62.08	532	1.60	-	
NO	31250	STRENGEN	8.38	60.00	1085	3.10	-	
NO	1650	STRØMFOSS SLUSE	11.66	59.30	113	3.00	-	
NO	20120	STUBDAL	10.40	60.12	442	3.90	-	
NO	68800	STUGUDAL	11.88	62.90	615	4.30	-	
NO	46300	SULDALSVATN	6.81	59.59	333	3.90	-	
NO	81900	SULITJELMA	16.07	67.13	142	6.70	-	
NO	70360	SULSTUA	12.02	63.67	251	3.50	-	
NO	80850	SUNDSFJORD	14.16	66.97	11	4.60	-	
NO	63500	SUNNDAL	9.10	62.55	195	5.20	-	
NO	63420	SUNNDALSRØRA	8.56	62.68	6	5.30	-	
NO	93300	SUOLOVUOPMI	23.53	69.59	374	2.90	-	
NO	64800	SURNADAL	9.01	63.01	39	5.40	-	
NO	77850	SUSENDAL	14.26	65.36	498	5.50	-	
NO	30570	SVÆLGFOSS	9.26	59.58	96	3.90	-	
NO	16790	SVANBORG	8.92	62.11	551	1.20	-	
NO	3500	SVARVERUD I EIDSBERG	11.52	59.53	182	3.80	-	
NO	57800	SVELGEN	5.28	61.77	16	2.80	-	
NO	44800	SVILAND	5.92	58.82	230	1.40	-	
NO	60500	TAFJORD	7.42	62.23	15	3.50	-	
NO	290	TÅGMYRA	12.07	61.42	557	3.40	-	
NO	52860	TAKLE	5.39	61.03	38	2.10	-	
NO	31100	TESSUNGDALEN	8.67	60.13	775	3.90	-	
NO	30800	TINNOSET	9.02	59.73	200	3.40	-	
NO	33330	TJØRNDALEN	7.65	59.78	873	6.10	-	
NO	16240	TOLSTADÅSEN	9.39	61.82	656	1.90	-	
NO	27470	TORP	10.27	59.20	90	3.80	-	
NO	38800	TOVDAL	8.23	58.79	227	3.90	-	
NO	36970	TOVSLID	7.98	59.06	599	6.20	-	
NO	88350	TRANØYBOTN	17.53	69.20	13	8.80	-	
NO	50900	TRENGEREID	5.65	60.43	366	5.20	-	
NO	3930	TRØGSTAD	11.40	59.66	158	3.30	-	
NO	90450	TROMSØ	18.93	69.65	100	7.00	-	
NO	200	TRYSIL	12.25	61.33	356	3.20	-	
NO	18950	TRYVASSHØGDA	10.69	59.99	514	6.30	-	
NO	31900	TUDDAL	8.81	59.75	464	3.80	-	
NO	800	TUFSINGDAL	11.78	62.25	670	2.80	-	
NO	29600	TUNNHOVD	8.75	60.46	870	2.70	-	
NO	73800	TUNNSJØ	13.66	64.68	376	6.70	-	
NO	78610	TUSTERVATNET II	13.91	65.83	439	9.60	-	
NO	37230	TVEITSUND	8.52	59.03	252	4.50	-	
NO	68170	TYHOLT	10.43	63.42	113	3.30	-	
NO	9600	TYNSET	10.75	62.30	483	1.10	-	
NO	50250	TYSSE	5.77	60.37	41	3.00	-	
NO	49350	TYSSDAL	6.56	60.12	32	2.10	-	
NO	4740	UKKESTAD	11.05	60.17	187	4.30	-	

NO	46050	ULLA	6.53	59.38	200	3.50	-	
NO	49490	ULLENSVANG FORSØKSGÅRD	6.65	60.32	12	1.80	-	
NO	59200	ULVESUND	5.14	61.97	1	2.50	-	
NO	79250	UMBUKTA FJELLSTUE	14.60	66.17	532	8.80	-	
NO	70820	UTGÅRD	11.74	64.12	50	3.80	-	
NO	29310	UVDAL	8.78	60.27	486	2.60	-	
NO	14580	VÅGÅMO	9.09	61.87	371	1.10	-	
NO	33900	VÅGSLI I VINJE	7.37	59.77	821	7.50	-	
NO	730	VALDALEN	12.17	62.08	794	4.00	-	
NO	97150	VALJOK	25.93	69.69	132	2.50	-	
NO	60650	VALLDAL - LINGE	7.23	62.30	50	4.80	-	
NO	71650	VALLERSUND	9.73	63.85	4	1.80	-	
NO	23720	VANG I VALDRES	8.58	61.13	477	2.40	-	
NO	53100	VANGSNES	6.65	61.17	51	2.50	-	
NO	54730	VARDEN - FILLEFJELL	8.15	61.18	1012	3.50	-	
NO	98550	VARDØ	31.08	70.37	14	2.90	-	
NO	25240	VATS	8.32	60.69	800	3.80	-	
NO	10900	VAULDALEN	12.03	62.64	830	4.80	-	
NO	12600	VEA	10.68	60.95	161	2.40	-	
NO	34500	VEFALL	9.22	59.00	67	4.90	-	
NO	28920	VEGLI	9.15	60.05	243	3.10	-	
NO	99330	VEINES I NEIDEN	29.25	69.70	44	2.40	-	
NO	61550	VERMA	8.05	62.34	247	5.80	-	
NO	99020	VESTERELV	28.58	70.15	14	2.00	-	
NO	13100	VESTRE GAUSTAD	9.77	61.34	580	2.80	-	
NO	54900	VETTI	7.01	61.00	329	3.80	-	
NO	6630	VIER	11.60	60.92	221	2.90	-	
NO	53070	VIK I SOGN III	6.59	61.07	65	2.10	-	
NO	5650	VINGER	12.03	60.22	175	2.50	-	
NO	65100	VINJEØRA	8.99	63.21	9	4.10	-	
NO	33560	VINJESVINGEN	7.81	59.63	471	6.10	-	
NO	13540	VINSTRÅ - SOLSTAD	9.78	61.58	249	1.60	-	
NO	49700	VIVELIEN I EIDSFJORD	7.15	60.35	876	4.90	-	
NO	28120	YTRE SANDVÆR	9.95	59.53	430	5.80	-	
NO	56400	YTRE SOLUND	4.68	61.00	3	1.70	-	
NO	69950	YTTERØY	11.20	63.80	76	3.10	-	
PT	P174	ALCACER DO SAL	-8.52	38.38	51	0.00	54	
PT	P126	ALCOBAÇA/E.FRUTICUL	-8.97	39.52	38	0.00	16	
PT	P212	ALVEGA	-8.05	39.47	51	0.20	42	*
PT	P250	AMARELEJA	-7.22	38.22	192	0.00	30	
PT	P102	AVEIRO	-8.67	40.63	5	0.00	14	
PT	P223	BENAVILA	-7.87	39.10	150	0.00	28	
PT	P061	BIGORNE	-7.88	41.00	975	0.75	36	*
PT	P045	BOA NOVA	-8.72	41.22	17	0.00	23	
PT	P023	BRAGA/POSTO AGRARIO	-8.40	41.55	190	0.05	54	*
PT	P575	BRAGANÇA	-6.73	41.80	690	0.38	54	
PT	P530	CABO CARVOEIRO	-9.40	39.35	32	0.00	54	
PT	P150	CABO DA ROCA	-9.50	38.78	142	0.00	46	
PT	P157	CABO RUIVO	-9.10	38.75	16	0.00	13	
PT	P019	CABRIL/S.LOURENÇO	-8.02	41.72	585	0.18	13	
PT	P044	CARRAZEDA DE ANSIAENS	-7.30	41.23	715	0.23	14	*
PT	P205	CASTELO BRANCO	-7.48	39.82	380	0.05	38	
PT	P148	COLARES/SARRAZOLA	-9.45	38.80	55	0.00	16	
PT	P144	CORUCHE	-8.53	38.95	25	0.00	11	
PT	P139	DOIS PORTOS	-9.18	39.03	110	0.00	46	
PT	P208	ENVENDOS	-7.88	39.57	260	0.00	7	

PT	P163	ESTORIL	-9.38	38.70	20	0.00	7	
PT	P244	EVORA/CURRAIS	-7.78	38.52	230	0.00	42	
PT	P554	FARO/AEROPORTO	-7.97	37.02	8	0.00	29	
PT	P070	FIGUEIRA DE CASTELO	-6.90	40.87	635	0.26	43	*
PT	P134	FONTE BOA	-8.73	39.20	73	0.00	32	
PT	P098	FUNDAO	-7.50	40.13	495	0.24	35	
PT	P177	GRANDOLA	-8.57	38.17	94	0.00	10	
PT	P082	GUARDA	-7.27	40.53	1019	0.34	51	*
PT	P201	LADOEIRO/RIBEIRO DO F.	-7.25	39.87	180	0.30	13	
PT	P007	LAMAS DE MOURO	-8.18	42.03	870	0.56	10	
PT	P166	LAVRADIO	-9.05	38.68	6	0.00	4	
PT	P579	LISBOA/GAGO COUTINHO	-9.13	38.77	104	0.00	13	
PT	P536	LISBOA/PORTELA	-9.13	38.78	103	0.00	7	
PT	P162	LISBOA/TAPADA AJUDA	-9.18	38.70	37	0.00	47	
PT	P095	LOUSA/BOAVISTA	-8.17	40.13	401	0.28	18	
PT	P057	LUZIM	-8.25	41.15	250	0.00	13	
PT	P088	MANTEIGAS	-7.53	40.40	815	1.25	15	
PT	P215	MARVAO	-7.38	39.40	865	1.27	28	
PT	P035	MIRANDA DO DOURO	-6.28	41.52	693	0.16	52	*
PT	P032	MIRANDELA	-7.20	41.52	250	0.07	53	*
PT	P037	MOGADOURO	-6.73	41.33	644	0.34	14	*
PT	P064	MOIMENTA DA BEIRA	-7.63	40.98	670	0.24	28	
PT	P192	MONCHIQUE	-8.55	37.32	465	0.00	16	
PT	P011	MONTALEGRE	-7.78	41.82	1005	0.74	54	
PT	P178	MONTE VELHO	-8.80	38.07	17	0.00	11	
PT	P534	MONTIJO/BASE AEREA	-9.05	38.70	14	0.00	28	
PT	P226	MORA	-8.17	38.93	110	0.00	38	
PT	P085	NELAS	-7.85	40.52	440	0.26	34	
PT	P539	OTA/BASE AEREA	-8.98	39.12	40	0.00	38	
PT	P043	PACOS DE FERREIRA	-8.38	41.27	320	0.14	39	
PT	P568	PENHAS DOURADAS	-7.55	40.42	1380	2.69	54	
PT	P055	PINHAO/SANTA BARBARA	-7.55	41.17	130	0.08	54	
PT	P175	PINHEIRO DA CRUZ	-8.73	38.27	52	0.00	11	
PT	P014	PONTE DE LIMA/ARCOZELO	-8.58	41.75	50	0.08	14	
PT	P571	PORTALEGRE	-7.42	39.28	597	0.23	54	*
PT	P546	PORTO/SERRA PILAR	-8.60	41.13	93	0.00	54	
PT	P279	PRAIA DA ROCHA	-8.53	37.12	19	0.00	53	
PT	P052	REGUA	-7.80	41.17	65	0.04	53	*
PT	P121	S.PEDRO DE MUEL	-9.03	39.75	40	0.00	29	
PT	P155	SACAVEM	-9.08	38.82	9	0.00	19	
PT	P538	SAGRES	-8.95	36.98	40	0.00	41	
PT	P132	SANTAREM/ESCOLA AGRI.	-8.70	39.25	54	0.00	51	
PT	P028	SANTO TIRSO	-8.47	41.35	28	0.00	41	
PT	P160	SASSOEIROS/OERIAS	-9.32	38.70	50	0.00	24	
PT	P073	SERRA DA MUNA	-7.88	40.72	628	0.09	35	
PT	P170	SETUBAL	-8.90	38.52	35	0.00	44	
PT	P171	SETUBAL/SETENAVE	-8.82	38.48	4	0.00	20	
PT	P542	SINES	-8.88	37.95	15	0.00	24	
PT	P532	SINTRA/GRANJA/BASE	-9.33	38.83	134	0.00	33	
PT	P282	TAVIRA	-7.65	37.12	25	0.00	52	
PT	P273	TAVIRA/CONCEIÇÃO	-7.60	37.17	80	0.00	21	
PT	P225	TERMAS/MONFORTINHO	-6.90	39.97	322	0.16	9	
PT	P195	TUNES	-8.25	37.17	56	0.00	15	
PT	P247	VIANA DO ALENTEJO	-8.05	38.33	202	0.00	54	
PT	P196	VILA DO BISPO	-8.88	37.08	115	0.00	49	
PT	P566	VILA REAL	-7.73	41.32	481	0.25	50	

PT	P136	VIMEIRO	-9.33	39.18	10	0.00	29	
PT	P075	UISEU	-7.90	40.67	443	0.37	51	*
PT	P188	ZAMBUJEIRA	-8.75	37.50	106	0.00	25	
SE	17	BJURÅKER	16.58	61.85	66	2.60	1905/66	
SE	31	BORÅS	12.95	57.77	140	1.70	1905/90	
SE	21	FALUN	15.63	60.62	122	2.20	1905/90	
SE	12	GÅDDEDE	14.13	64.50	318	3.40	1905/90	
SE	4	GÄLLIVARE	20.67	67.13	358	3.20	1905/57	
SE	18	GÄVLE	17.13	60.67	11	2.40	1905/90	
SE	34	GÖTEBORG	11.97	57.70	31	1.10	1905/90	
SE	35	HALMSTAD	12.85	56.67	4	1.10	1905/90	
SE	7	HAPARANDA	24.15	65.83	7	2.80	1905/90	
SE	15	HÄRNÖSAND	17.95	62.63	8	3.20	1905/90	
SE	6	JOKKMOKK	19.85	66.60	257	3.00	1905/90	
SE	32	JÖNKÖPING	14.17	57.78	97	1.80	1905/90	
SE	1	KARESUANDO	22.50	68.45	327	2.40	1905/90	
SE	37	KARLSHAMN	14.87	56.00	7	1.40	1905/90	
SE	22	KARLSTAD	13.47	59.37	47	1.90	1905/90	
SE	3	KIRUNA	20.23	67.85	505	3.20	1905/64	
SE	38	KRISTIANSTAD	14.15	56.03	6	1.30	1905/90	
SE	5	KVIKKJOKK	17.73	66.93	337	3.60	1905/90	
SE	28	LINKÖPING	15.63	58.42	96	1.80	1905/90	
SE	39	LUND	13.20	55.72	73	1.20	1905/90	
SE	20	MALUNG	13.72	60.68	308	2.70	1905/90	
SE	27	NYKÖPING (STAD)	17.00	58.77	24	2.10	1905/61	
SE	23	ÖREBRO	15.22	59.25	51	1.90	1905/90	
SE	14	ÖSTERSUND	14.67	63.17	330	2.50	1905/90	
SE	8	PITEÅ	21.47	65.32	6	3.00	1905/90	
SE	2	RIKSGRÄNSEN	18.13	68.43	508	5.60	1905/73	
SE	19	SÄRNA	13.12	61.68	458	2.90	1905/90	
SE	29	SKARA	13.45	58.40	117	1.50	1905/90	
SE	10	STENSELE	17.17	65.07	330	2.80	1905/90	
SE	26	STOCKHOLM	18.07	59.35	44	1.80	1905/90	
SE	13	STORLIEN	12.10	63.32	595	4.80	1905/64	
SE	16	SVEG	14.42	62.03	360	2.70	1905/90	
SE	9	TÄRNABY	15.30	65.68	447	4.50	1905/72	
SE	11	UMEÅ	20.28	63.83	11	2.80	1905/90	
SE	25	UPPSALA	17.63	59.87	24	1.70	1905/90	
SE	30	VÄNERSBORG	12.33	58.38	49	1.60	1905/90	
SE	24	VÄSTERÅS	16.55	59.62	18	1.60	1905/90	
SE	33	VÄSTERVIK	16.63	57.78	9	2.00	1905/90	
SE	36	VÄXJÖ	14.82	56.88	168	1.40	1905/90	
SE	40	VISBY	18.30	57.65	28	1.80	1905/90	
SP	7150	ABARAN SIERRA DE LA PILA	-1.32	38.25	300	0.15	38	
SP	9621	ADRALL	1.39	42.32	642	0.70	62	
SP	4560	ALAJAR	-6.66	37.87	577	0.19	32	
SP	2257	ALARDELREY	-4.31	42.66	851	0.76	59	
SP	4464	ALBURQUERQUE	-7.00	39.22	500	0.15	47	
SP	3169	ALCALA HENARES 'CANALEJA'	-3.30	40.51	613	0.26	36	
SP	9573	ALCAÑIZ-AYUNTAMIENTO	-0.13	41.05	325	0.58	31	
SP	4064	ALCAZARDESAN JUAN	-3.21	39.39	664	0.37	56	
SP	8059	ALCOY	-0.47	38.70	562	0.74	34	
SP	4411	ALCUESCAR	-6.22	39.18	488	0.13	56	
SP	3455	ALDEACENTENERA 'CANTAMPLINA'	-5.67	39.57	520	0.05	34	
SP	2440	ALDEADEL REY NIÑO'DEHESA GU-TE	-4.70	40.57	1160	0.62	62	*
SP	7219	ALHAMA HUERTA ESPUÑA	-1.52	37.85	760	0.39	64	*



SP	9279	ALLOZ'EMBALSE'	-1.94	42.70	475	0.40	33	
SP	5733	ALMADENDELA PLATA 'LASNAVAS'	-6.07	37.79	450	0.12	45	
SP	4300	ALMADEN'MINAS'	-4.84	38.77	535	0.19	73	
SP	2045	ALMAZAN	-2.52	41.68	938	0.38	63	
SP	4563	ALMONASTERLA REAL	-6.79	37.87	610	0.11	45	*
SP	9491	ALMUDEVAR-GRANJA CHE	-0.59	42.02	390	0.27	59	*
SP	9269	ALSASUA	-2.18	42.89	525	1.03	69	
SP	1060	AMURRIO'INSTITUTO'	-3.00	43.05	219	0.74	43	
SP	4558	ARACENA	-6.56	37.89	731	0.09	65	
SP	1083	ARCENALES	-3.22	43.22	300	1.03	31	
SP	4016	ARGAMASILLADE ALBA	-3.09	39.12	671	0.21	59	
SP	1267	ARGANZA	-6.49	43.26	320	0.72	30	
SP	7059	ARGUELLITE	-2.43	38.34	980	0.53	60	
SP	4524	AROCHE	-6.95	37.94	421	0.04	48	*
SP	1021	ARTICUTZA	-1.79	43.21	305	1.27	47	
SP	9215	ARTIEDA	-0.99	42.60	510	0.66	58	
SP	9232	ARTIEDA	-1.32	42.71	450	0.78	34	
SP	9181	AYEGUIRACHE	-2.04	42.65	520	0.54	49	
SP	397	BAGET	2.48	42.32	541	0.42	30	
SP	9210E	BAILOPUENTE LA REINA	-0.80	42.55	595	0.66	31	
SP	9715	BALAGUER'INSTITUTO'	0.82	41.78	212	0.26	33	
SP	203	BALENYA	2.26	41.85	570	0.88	65	
SP	0200E	BARCELONAFABRA	2.12	41.42	420	0.06	63	
SP	3439	BARRADO	-5.88	40.08	796	0.54	58	
SP	72	BEGAS	1.93	41.33	360	0.41	39	*
SP	8286	BENIATJAR LES PLANISES	-0.42	38.84	396	0.99	49	
SP	8043	BENISA CONVENTO	0.04	38.72	210	0.48	50	
SP	4383	BERLANGA	-5.83	38.28	573	0.31	41	
SP	9915	BINEFARGRANJA	0.29	41.86	285	0.85	47	
SP	7155	BLANCA CASAFORRESTAL	-1.32	38.18	240	0.22	48	*
SP	6106	BOBADILLA ESTACION	-4.72	37.04	380	0.35	37	
SP	4114	BOLAÑOSDECALATRAVA	-3.67	38.90	650	0.24	30	
SP	9822	BOLTAÑA	0.07	42.44	643	0.82	35	
SP	2636	BOÑAR	-5.32	42.86	975	1.10	62	
SP	9767	BORJAS BLANCAS	0.86	41.52	304	0.43	31	
SP	7167	BULLAS	-1.67	38.04	645	1.16	44	
SP	9305	BUÑUEL	-1.44	41.97	242	0.24	34	
SP	B264	BUNYOLA'SON VIDAL'	2.76	39.74	455	1.15	23	
SP	2331	BURGOS 'VILLAFRIA'	-3.61	42.35	881	0.42	53	
SP	4503	CABEZA LA VACA	-6.42	38.09	759	0.26	56	*
SP	3469	CACERESCIUDAD	-6.37	39.48	459	0.04	77	*
SP	9283	CADREITA	-1.71	42.21	268	0.24	56	
SP	7121	CALASPARRA	-1.69	38.23	340	0.82	47	
SP	9395	CALATAYUD	-1.63	41.35	534	0.28	34	
SP	4155A	CALZADACALATRAVA'COOPER.'	-3.77	38.70	645	0.19	41	*
SP	9198	CANFRANCLOS ARA/ONES	-0.52	42.74	1160	1.50	86	
SP	9255	CAPARROSO	-1.65	42.34	304	0.31	45	
SP	9689	CAPDELLA	0.99	42.46	1270	1.48	63	
SP	7119	CARAVACA	-1.86	38.11	625	0.65	61	
SP	1700A	CARBALLINO'UCEIRA'	-8.05	42.44	440	0.60	42	
SP	2202	CARBONERO EL MAYOR	-4.26	41.12	912	0.43	56	
SP	9246	CARCASTILLOLA OLIVA	-1.46	42.37	340	0.30	61	*
SP	9425I	CARIÑENALA PARDINA	-1.21	41.40	496	0.31	35	
SP	2374A	CARRIONDELOS CONDES 'C.D.'	-4.60	42.34	839	0.29	60	
SP	7012	CARTAGENA CASTILLOGALERAS	-0.99	37.59	219	0.00	30	
SP	39	CASAFORT -NULLES	1.30	41.25	230	0.80	46	

SP	2752	CASTROCONTRIGO	-6.19	42.17	920	0.70	65	
SP	2531E	CASTRONUÑO'PRESASAN JOSE'	-5.27	41.40	660	0.29	30	
SP	3363	CAZALEGAS 'VIVERO'	-4.71	40.01	380	0.20	33	
SP	7120	CEHEGIN	-1.79	38.09	572	1.11	32	
SP	9145A	CENICEROINDUSTRIAL	-2.64	42.48	430	0.35	49	
SP	2234	CERVERADEPISUERGA	-4.49	42.86	1013	1.11	59	
SP	7131	CIEZALOS ALMADENES	-1.55	38.24	200	0.19	33	
SP	2626	CISTIerna	-5.12	42.80	951	1.15	51	
SP	4121C	CIUDAD REAL'INSTITUTO'	-3.92	38.99	627	0.25	66	
SP	2946	CIUDAD RODRIGO	-6.53	40.59	653	0.30	56	
SP	4037	DAIMIEL'I.L.'	-3.60	39.07	615	0.39	40	*
SP	9390	DAROCA OBSERVATORIO	-1.41	41.11	779	0.37	67	
SP	7201	DOÑAINES	-1.84	37.92	786	0.83	58	
SP	2828	EL BARCODEAVILA	-5.52	40.35	1007	0.52	52	
SP	9331F	EL BAYO	-1.26	42.19	360	0.25	33	
SP	2085	EL BURGODEOSMA	-3.07	41.59	895	0.33	65	
SP	6118A	EL BURGO'ICONA'	-4.94	36.79	580	0.32	30	
SP	9833	EL GRADO'EMBALSE'	0.23	42.15	425	0.27	53	*
SP	7077	ELCHEDELASIERRA	-2.04	38.44	630	0.44	58	
SP	7129	EMBALSEALFONSO XIII	-1.59	38.22	312	0.61	65	
SP	7109	EMBALSEDECAMARILLAS	-1.64	38.34	397	0.34	60	*
SP	7083	EMBALSEDECENAJO	-1.77	38.36	360	0.19	64	
SP	7168	EMBALSEDELA CIERVA	-1.49	38.06	395	0.68	65	
SP	7066	EMBALSEDELA FUENSANTA	-2.22	38.39	680	0.68	64	
SP	7094	EMBALSEDETALAVE	-1.86	38.51	550	0.17	61	
SP	7198	EMBALSEDEVALDEINFIERNO	-1.96	37.80	690	0.47	63	
SP	8290	ENGUERALASARENAS	-0.80	38.92	826	0.40	54	*
SP	9432	EPILA'MONTARRON'	-1.29	41.60	336	0.33	33	*
SP	5826	ESCACENADEL CAMPO'LAS CONTIEND	-6.42	37.57	417	0.38	50	
SP	9257E	EUGUIESTERIBAR	-1.52	42.96	615	1.28	30	
SP	4296	FONTANOSAS	-4.54	38.76	570	0.24	31	
SP	4258	FUENTE OBEJUNA 'CUENCA'	-5.56	38.32	571	0.22	38	
SP	1687	FUENTEFIZ 'VILAR DE COLES'	-7.83	42.42	200	0.40	32	
SP	9704	GABETCENTRAL	0.89	42.10	380	0.88	48	*
SP	4515	GALAROZA	-6.71	37.92	554	0.44	39	
SP	3384	GARVIN DE LA JARA'EL PLANCHON'	-5.36	39.69	690	0.59	30	*
SP	6050	GAUCIN	-5.31	36.52	626	0.65	33	
SP	3200	GETAFE BASEAEREA	-3.72	40.30	617	0.24	34	
SP	1735	GINZODELIMIA	-7.72	42.06	600	0.48	51	
SP	7058	GONTAR	-2.43	38.22	914	0.84	50	
SP	5514	GRANADA/BASE AEREA	-3.63	37.14	680	0.21	47	*
SP	9907I	GRAÑENMONTE SODETO	-0.25	41.89	365	0.36	38	
SP	9849	GRAUS'VENTAS DE SANTA LUCIA'	0.35	42.22	498	0.75	56	
SP	4245	GUADALUPE 'MONASTERIO'	-5.32	39.45	640	0.50	51	
SP	C468A	GUANCHA-ASOMADA	-16.64	28.36	500	0.00	41	
SP	9121	HARO	-2.85	42.57	479	0.34	60	
SP	7096A	HELLINI.L.	-1.70	38.51	560	0.19	31	
SP	4244	HERRERADELDUQUE	-5.04	39.16	465	0.20	31	
SP	3504	HERVAS	-5.85	40.27	688	0.39	51	
SP	7091	HIJAR	-2.02	38.54	617	0.31	41	
SP	9898	HUESCAMONFLORITE	-0.32	42.08	541	0.27	55	
SP	9224	JAVIERCASTILLO	-1.21	42.59	455	0.38	47	
SP	4511	JEREZDELOS CABALLEROS	-6.77	38.32	492	0.05	70	*
SP	8029	JIJONA	-0.50	38.54	415	0.35	37	
SP	7138	JUMILLAESTACION VITICOLA	-1.33	38.47	510	0.30	42	
SP	7138A	JUMILLAI L	-1.36	38.47	502	0.26	39	

SP	328	LA FARGADEBEBIE	2.20	42.13	608	0.99	48	
SP	3246	LA GUARDIA	-3.47	39.79	699	0.29	33	
SP	9474	LA PEÑA'EMBALSE'	-0.74	42.39	589	0.51	34	
SP	9547	LA PUEBLA DE HIJAR	-0.44	41.22	245	0.33	34	
SP	9489	LA SOTONERA'EMBALSE'	-0.67	42.10	413	0.47	65	
SP	2099	LA VID DE ARANDA	-3.49	41.62	832	0.45	53	
SP	6258	LANJARON	-3.49	36.92	710	0.25	50	*
SP	4110	LAS LABORES	-3.52	39.27	650	0.39	30	
SP	C658I	LAS PALMASDE GRANCANARIA 'V	-15.45	28.07	320	0.00	33	
SP	1037	LEGAZPIA	-2.33	43.06	402	1.44	40	
SP	2661	LEON'VIRGEN DEL CAMINO'	-5.65	42.59	913	0.45	60	
SP	9770	LERIDAENHER	0.63	41.62	221	0.21	39	
SP	7092	LIETORC.H.S.	-1.95	38.54	641	0.43	59	
SP	5250	LINARESFUENTE HIGUERA	-3.59	38.08	300	0.24	30	
SP	C128A	LLANOS ARIDANE-A	-17.90	28.66	350	0.00	39	
SP	4020	LLANOS DELCAUDILLO	-3.37	39.11	650	0.34	34	*
SP	9170	LOGROÑO-AGONCILLO	-2.33	42.45	352	0.18	49	*
SP	7208	LORCACH SEGURA	-1.70	37.67	335	0.15	62	*
SP	7209	LORCAEST CEREALICULTURA	-1.69	37.65	320	0.27	43	*
SP	1518A	LUGO'COLEGIO FINGOY'	-7.55	43.01	450	0.24	32	
SP	3196	MADRID CUATRO VIENTOS 'AERODROMO	-3.79	40.37	687	0.28	36	
SP	3195	MADRID RETIRO	-3.67	40.41	667	0.14	62	
SP	3129	MADRID/BARAJAS	-3.54	40.45	582	0.21	35	
SP	4067	MADRIDEJOS	-3.53	39.47	690	0.29	30	
SP	6168	MALAGA EL BOTICARIO	-4.39	36.79	500	0.30	46	
SP	6165	MALAGA LASCONTADORAS	-4.39	36.84	630	0.75	45	
SP	4036	MANZANARES'DOCTOR'	-3.53	38.97	660	0.31	37	
SP	9481	MARRACOS	-0.77	42.09	400	0.39	37	
SP	9941	MAZALEON	0.10	41.05	359	0.37	33	*
SP	2604	MEDINA DE RIOSECO	-5.04	41.88	749	0.21	54	*
SP	7106	MINATEDA	-1.60	38.46	530	0.69	35	
SP	9044	MIÑON	-3.50	42.94	595	0.77	31	
SP	9069	MIRANDADEEBRO	-2.95	42.67	520	0.30	69	
SP	7065	MOLINICOS	-2.24	38.46	823	0.47	55	*
SP	1144	MOLLEDEPORTOLIN	-4.03	43.14	242	1.08	36	
SP	9729	MOLLERUSA 'GRANJA'	0.86	41.61	268	0.43	34	
SP	9515	MONEVA-EMBALSE	-0.83	41.17	650	0.63	30	
SP	1679A	MONFORTEDELEMOSE.AGRICOLA'	-7.51	42.52	363	0.08	42	*
SP	8009E	MONOVARELESVARADOR	-0.87	38.47	560	0.24	30	
SP	9690	MONROS MOLINOS	0.97	42.40	1020	0.68	65	
SP	9301	MONTEAGUDO	-1.69	41.96	410	0.30	68	
SP	9562	MORELLA	-0.10	40.62	990	0.89	63	
SP	8155	MOTILADELPALANCAR	-1.89	39.57	831	0.50	55	
SP	120	MOYA	2.10	41.82	800	0.51	73	
SP	4222	NAVALPINO 'BAÑOS VILLANAREJO'	-4.59	39.25	665	0.19	39	
SP	8013	NOVELDA	-0.77	38.38	241	0.00	32	
SP	3495	NUÑOMORAL VEGAS DECORIA	-6.19	40.38	465	0.42	41	
SP	9638	OLIANA 'EMBALSE'	1.30	42.08	480	0.41	50	
SP	9252	OLITE	-1.65	42.49	395	0.39	60	
SP	392	OLOTE'ESTACION DEPURADORA'	2.49	42.20	380	0.89	34	*
SP	8283	ONTINYENT	-0.60	38.82	350	0.85	58	
SP	7102A	ONTURCENTRO URBANO	-1.49	38.61	670	0.36	30	
SP	5998A	OSUNA'S.E.A.'	-5.11	37.24	255	0.00	30	
SP	9268	OTZAURTE	-2.27	42.93	660	1.32	34	
SP	1247	OVIEDO 'LACADELLADA'	-5.82	43.37	220	0.44	45	

SP	9910	PALLARUELODE MONEGROS	-0.21	41.70	356	0.30	43	
SP	9262C	PAMPLONAGRANJA	-1.66	42.82	422	0.69	42	
SP	9262	PAMPLONAOBSERVATORIO	-1.64	42.82	442	0.68	45	
SP	8388	PANTANODEBENAGEVER	-1.10	39.73	461	0.52	35	
SP	2362	PANTANODECAMPORREDONDO	-4.74	42.90	1253	1.43	64	
SP	6120	PANTANODEGUADALHORCE	-4.80	36.93	325	0.00	34	
SP	8084	PANTANODELA TOBA	-1.92	40.22	1154	0.82	53	
SP	5729	PANTANODELPINTADO	-5.95	37.98	300	0.00	46	
SP	2843	PANTANODESTA. TERESA	-5.60	40.67	840	0.46	59	
SP	4189	PANTANODETORRE DE ABRAHAM	-4.25	39.37	697	0.51	31	
SP	3502	PANTANOGABRIEL YGALAN	-6.12	40.22	400	0.24	36	
SP	3422	PANTANOROSARITO	-5.32	40.11	334	0.06	36	*
SP	9451	PANTICOSA BALNEARIO	-0.23	42.76	1660	3.02	51	
SP	7088	PATERNAMADERA C.H.S.	-2.34	38.59	1133	0.82	56	
SP	4286	PEDROCHE	-4.76	38.42	621	0.16	37	
SP	7247	PINOSO CHSEGURA	-1.04	38.40	574	0.43	61	
SP	9696A	POBLADESEGUR FECSA	0.97	42.25	550	0.45	46	
SP	1549	PONFERRADA	-6.58	42.63	550	0.49	44	
SP	9649	PONS	1.19	41.92	360	0.35	32	
SP	7045	PONTONESCH SEGURA	-2.67	38.12	1350	0.92	64	
SP	4275	POZOBLANCO	-4.85	38.37	649	0.15	59	
SP	1273	PRESADELABARCA	-6.30	43.32	214	0.64	30	
SP	3510	PRESADEVALDEOBISPO	-6.25	40.09	280	0.23	35	
SP	1411	PRESARAS	-8.09	43.04	410	0.46	46	
SP	2667	PRIORO	-4.96	42.89	1123	1.57	55	
SP	1672	PUEBLA DELBROLLON'VEIGA'	-7.41	42.59	400	0.33	47	
SP	9755	PUENTE DE MONTAÑANA	0.70	42.15	528	0.20	30	
SP	1363	PUENTESDEGARCIARODRIGUEZ	-7.86	43.44	343	0.55	49	
SP	7211	PUERTO LUMBRERAS CH SEGURA	-1.81	37.56	465	0.23	57	*
SP	2697	RABANALDELUNA	-5.97	42.93	1150	1.58	60	
SP	9001	REINOSA	-4.14	43.00	855	2.46	76	
SP	8313	REQUENA	-1.09	39.48	692	0.62	54	
SP	2624	RIAÑO	-5.01	42.97	1048	1.44	54	
SP	2377	RIBASDECAMPOS 'VIVERO'	-4.52	42.15	777	0.29	51	*
SP	7156	RICOTE LA CALERA	-1.38	38.14	480	0.35	47	
SP	7085	RIOPARFABRICASC.H.S.	-2.42	38.50	1000	0.45	62	
SP	9460	SABIÑANIGO	-0.36	42.52	790	0.88	56	
SP	2867	SALAMANCA 'MATACAN'	-5.49	40.94	790	0.21	53	
SP	2370	SALDAÑA	-4.73	42.52	912	0.47	52	
SP	111	SALLENCABRIANAS	1.89	41.79	246	0.48	56	
SP	2899	SALTODEALDEADAVILA	-6.68	41.22	220	0.37	34	
SP	3082	SALTODEBOLARQUE	-2.83	40.36	620	0.24	36	*
SP	2802	SALTODERICOBAYO	-5.98	41.52	702	0.22	61	
SP	2805	SALTODEVILLALCAMPO	-6.07	41.49	570	0.20	40	
SP	3086	SALTODEZORITA	-2.88	40.34	642	0.15	36	
SP	2095	SAN ESTEBANDE GORMAZ	-3.20	41.57	860	0.38	64	
SP	9710	SAN LORENZO'EMBALSE'	0.83	41.85	245	0.56	50	
SP	1318	SAN MARTINDE OSCOS	-6.96	43.26	697	1.39	31	
SP	1024E	SAN SEBASTIAN 'IGUELDO'	-2.04	43.30	259	0.39	73	
SP	2922	SANCTI-SPIRITUS	-6.40	40.70	756	0.38	51	
SP	173	SANTAMARGARITA DEMOMBUY	1.59	41.55	400	1.19	44	*
SP	1428	SANTIAGOCOMPOSTELA 'LABACOLLA'	-8.42	42.89	364	0.32	45	*
SP	7056	SANTIAGODELA ESPADA	-2.55	38.11	1340	1.10	64	
SP	1525	SARRIA 'BARREIROSGRANJA'	-7.41	42.77	550	0.66	55	
SP	9174	SARTAGUDA	-2.05	42.36	310	0.35	73	*
SP	8438	SEGORBE	-0.49	39.85	364	0.50	43	

SP	2465	SEGOVIA'OBSERVATORIO'	-4.12	40.95	1005	0.27	64	
SP	9843	SEIRACENTRAL	0.44	42.47	816	0.83	60	
SP	9695	SENERADA	0.94	42.32	660	0.44	49	
SP	9619	SEO DE URGEL	1.46	42.35	692	0.69	40	
SP	3448	SERRADILLA	-6.14	39.83	410	0.28	34	
SP	7081	SOCOVOS	-1.98	38.33	750	0.69	56	*
SP	4097	SOCUELLAMOS	-2.79	39.28	674	0.29	33	*
SP	132	SOLSONA	1.52	42.00	677	0.53	43	*
SP	2030	SORIA'OBSERVATORIO'	-2.48	41.77	1082	0.43	67	
SP	9244	SOS DELREYCATOLICO	-1.20	42.50	542	0.52	42	
SP	3117	TALAMANCA DEL JARAMA	-3.51	40.74	654	0.37	34	
SP	9700	TALARN 'PRESA'	0.90	42.17	425	0.49	62	
SP	9918	TAMARITDELITERA'LA MELUSA'	0.37	41.77	218	0.29	33	
SP	9720	TARREGA	1.14	41.64	375	1.00	49	
SP	9708	TERRADETS 'EMBALSE'	0.89	42.04	399	0.55	49	*
SP	9371	TERRER AZUCARERA	-1.71	41.32	570	0.28	66	
SP	9971	TIVISSA	0.73	41.04	310	0.82	80	*
SP	4103	TOMELLOSO	-3.02	39.15	662	0.26	31	
SP	5330A	TORREDONJIMENO 'INSTITUTO'	-3.95	37.76	591	0.36	40	
SP	3175	TORREJONDEARDOZ/B.AEREA	-3.45	40.48	611	0.24	36	
SP	4140	TORREJUANABAD 'TERCERAS'	-3.16	38.66	810	0.35	60	
SP	7214	TOTANA ALQUERIAS	-1.57	37.83	799	0.22	62	*
SP	7218	TOTANA IL	-1.50	37.76	225	0.23	42	
SP	7216	TOTANA MORTI	-1.53	37.79	480	0.00	39	
SP	7217	TOTANA PRESA DEL PARETON	-1.45	37.72	200	0.29	65	*
SP	3465	TRUJILLO	-5.87	39.45	518	0.32	49	
SP	9302	TUDELA AZUCARERA	-1.59	42.06	263	0.31	36	
SP	2177	TUDELA DE DUERO	-4.58	41.58	702	0.22	52	
SP	9076	ULLIVARRI GAMBOA 'PRESA'	-2.61	42.92	570	0.98	30	
SP	9080	URRUNAGA'PRESA'	-2.65	42.96	540	1.20	30	
SP	8311	UTIEL	-1.20	39.57	742	0.36	55	
SP	3576	VALENCIADEALCANTARA	-7.24	39.41	460	0.09	53	
SP	2409E	VALLADOLID'NICAS'	-4.68	41.69	690	0.26	37	
SP	2422	VALLADOLID'OBSERVATORIO'	-4.77	41.64	735	0.18	67	
SP	2539	VALLADOLID'VILLANUBLA'	-4.87	41.72	845	0.24	60	
SP	C319E	VALLEHERMOSO	-17.26	28.17	212	0.00	35	
SP	C665I	VALLESECO-CASCO	-15.57	28.04	980	0.00	52	
SP	2403	VENTADEBAÑOS 'AZUCARERA'	-4.49	41.92	720	0.23	59	
SP	9991	VIELLA	0.79	42.71	940	1.06	55	
SP	1495	VIGO'PEINADOR'	-8.63	42.22	255	0.26	37	
SP	1124	VILLACARRIEDO	-3.80	43.23	212	0.94	50	
SP	1569B	VILLAFRANCA'CUBELOS'	-6.81	42.60	518	0.48	36	
SP	2728	VILLAMECA	-6.07	42.64	978	0.81	65	
SP	4331	VILLANUEVADE LA SERENA	-5.79	38.97	294	0.05	43	*
SP	3531	VILLANUEVADE LA SIERRA	-6.40	40.20	524	0.39	33	
SP	4274	VILLARALTO	-4.98	38.45	583	0.21	46	
SP	3304	VILLAREJO DE MONTALBAN	-4.57	39.77	533	0.14	35	
SP	8007	VILLENA	-0.87	38.63	505	0.37	49	
SP	2006	VINUESA	-2.76	41.91	1107	1.22	54	
SP	9087	VITORIAAEROPUERTO	-2.65	42.85	521	0.75	36	
SP	7275	YECLACH SEGURA	-1.10	38.62	605	0.38	62	
SP	9223	YESA'EMBALSE'	-1.19	42.62	515	0.59	58	
SP	7061	YESTEC.H.S.	-2.31	38.37	900	0.65	54	*
SP	4427	ZAFRA	-6.42	38.42	508	0.27	56	
SP	2614A	ZAMORA 'IBERDUERO'	-5.74	41.50	655	0.23	41	
SP	2614	ZAMORA 'OBSERVATORIO'	-5.75	41.49	667	0.18	67	

SP	9434	ZARAGOZAEROPUERTO	-1.00	41.66	247	0.28	47	
SP	9499	ZARAGOZAULA DEI	-0.81	41.72	225	0.36	33	
SP	9443E	ZARAGOZA OBSERVATORIO	-0.88	41.64	233	0.29	34	
SP	1287	ZARDAIN	-6.55	43.39	410	1.00	30	
SP	4311	ZARZACAPILLA	-5.15	38.80	600	0.36	40	
SP	7206	ZARZADILLADE TOTANA	-1.70	37.87	861	0.44	58	*
SP	3540E	ZARZALAMAYOR	-6.86	39.87	304	0.04	30	
SP	9495	ZUERAEL VEDADO	-0.65	41.87	298	0.33	32	
UK	6379	ABBOTSINCH, GLASGOW (L.P.M.S.)	-4.43	55.87	5	0.33	47	
UK	8009	ABERPORTH	-4.57	52.13	133	0.26	40	
UK	351	ACHANY	-4.42	57.98	85	0.75	38	
UK	9142	ALDERGROVE	-6.22	54.65	68	0.43	46	
UK	9147	ALTNAHINCH FILTERS	-6.25	55.05	213	0.60	31	*
UK	7623	ALWEN	-3.55	53.07	335	0.64	28	
UK	1393	ARBROATH	-2.58	56.55	29	0.28	36	
UK	1435	ARDTALNAIG	-4.12	56.53	130	0.61	37	
UK	9336	ARMAGH (LPMS)	-6.65	54.35	62	0.37	33	
UK	6025	AROS	-5.98	56.53	37	0.27	30	
UK	4166	ASHOVER	-1.47	53.15	178	0.71	29	
UK	4088	ASKHAM BRYAN	-1.17	53.92	32	0.32	38	*
UK	1226	BALMORAL	-3.20	57.03	283	0.86	38	
UK	88	BALTASOUND	-0.88	60.77	24	0.63	37	
UK	9042	BANAGHER (CAUGH HILL)	-6.97	54.88	216	0.72	25	
UK	1189	BANFF	-2.52	57.67	24	0.30	12	
UK	6704	BARGRENNAN	-4.57	55.07	110	0.47	37	*
UK	8697	BATH	-2.37	51.37	118	0.31	38	*
UK	516	BENBECULA	-7.37	57.47	5	0.23	35	
UK	6085	BENMORE (YOUNGER BOTANIC GDN)	-4.98	56.03	12	0.51	37	
UK	5480	BEXHILL	0.47	50.83	4	0.32	37	*
UK	2468	BINBROOK	-0.20	53.45	108	0.48	26	
UK	1836	BLYTH BRIDGE	-3.37	55.72	253	0.62	38	
UK	5411	BOGNOR REGIS	-0.68	50.78	7	0.20	33	*
UK	7263	BOLTON	-2.42	53.60	107	0.56	24	*
UK	5872	BOSCOMBE DOWN	-1.75	51.17	126	0.38	30	
UK	7713	BOTWNOG	-4.57	52.85	34	0.19	26	
UK	1935	BOWHILL	-2.90	55.53	168	0.73	38	
UK	4045	BRADFORD	-1.77	53.82	134	0.65	36	
UK	4076	BRAMHAM	-1.33	53.87	54	0.40	38	
UK	4504	BRIZE NORTON	-1.58	51.75	81	0.27	29	*
UK	6133	BRODICK CASTLE	-5.15	55.60	15	0.34	32	
UK	3115	BROOMS BARN	0.57	52.27	75	0.30	32	
UK	8987	BUDE	-4.55	50.83	15	0.21	31	
UK	1643	BUSH HOUSE	-3.20	55.85	184	0.61	38	
UK	4112	BUXTON	-1.92	53.25	307	0.91	38	
UK	4341	CALDECOTT	-0.73	52.52	53	0.36	36	
UK	3253	CAMBRIDGE (BOTANICAL GARDENS)	0.13	52.20	12	0.30	38	
UK	3254	CAMBRIDGE (N.I.A.B.)	0.10	52.23	26	0.34	38	
UK	6483	CAMPS RESERVOIR	-3.58	55.48	295	0.69	32	
UK	329	CAPE WRATH	-5.00	58.62	112	0.29	39	*
UK	7050	CARLISLE	-2.95	54.93	26	0.31	27	
UK	6478	CARNWATH	-3.63	55.70	208	0.60	37	
UK	9433	CARRIGANS	-7.32	54.67	113	0.43	29	
UK	9547	CASTLE ARCHDALE FOREST	-7.70	54.47	66	0.40	27	
UK	4086	CAWOOD	-1.15	53.83	6	0.32	38	
UK	4967	CHELTENHAM	-2.08	51.90	65	0.36	16	
UK	5612	CHRISTCHURCH	-1.78	50.73	4	0.26	29	*

UK	8477	CILFYNYDD	-3.30	51.63	194	0.58	19	
UK	3691	CLACTON-ON-SEA	1.15	51.78	16	0.35	36	*
UK	2084	COCKLE PARK	-1.68	55.22	99	0.65	38	
UK	3078	COLTISHALL	1.35	52.77	17	0.43	32	
UK	9488	COOKSTOWN	-6.75	54.60	77	0.43	24	
UK	7884	CORWEN	-3.42	52.95	144	0.62	36	
UK	1272	CRAIBSTONE	-2.20	57.18	102	0.63	26	
UK	3069	CROMER	1.28	52.93	54	0.39	36	
UK	8585	CRUMBLAND PLANTATION	-2.77	51.72	245	0.61	23	
UK	8922	CULDROSE	-5.25	50.08	78	0.23	33	*
UK	8086	CWMSTYTH	-3.82	52.35	301	0.47	20	*
UK	1444	DRUMMOND CASTLE	-3.88	56.33	113	0.80	27	
UK	6641	DUMFRIES	-3.60	55.07	49	0.39	27	*
UK	1699	DUNBAR	-2.52	56.00	23	0.24	37	*
UK	1361	DUNDEE	-2.93	56.47	45	0.44	37	
UK	2165	DURHAM (LPMS)	-1.58	54.77	102	0.69	38	
UK	1273	DYCE	-2.20	57.20	65	0.58	40	
UK	5336	EAST MALLING	0.45	51.28	33	0.32	37	*
UK	5471	EASTBOURNE	0.28	50.77	7	0.23	20	*
UK	1636	EDINBURGH-EAST CRAIGS	-3.32	55.95	61	0.42	38	
UK	1649	EDINBURGH-ROYAL BOTANIC GARDENS	-3.20	55.97	26	0.34	38	
UK	4447	ELMDON	-1.73	52.45	96	0.51	47	
UK	6679	ESKDALEMUIR (STEV. SCREEN)	-3.20	55.32	242	0.79	40	
UK	5631	EVERTON	-1.57	50.73	16	0.33	38	*
UK	8884	EXETER	-3.42	50.73	32	0.33	34	*
UK	1467	FASKALLY	-3.77	56.72	94	0.53	38	*
UK	5367	FAVERSHAM	0.87	51.28	48	0.53	29	
UK	4248	FINNINGLEY	-1.00	53.48	10	0.35	37	
UK	5380	FOLKESTONE	1.17	51.08	31	0.49	24	
UK	575	FORT AUGUSTUS	-4.67	57.13	21	0.48	38	
UK	482	FORTROSE	-4.08	57.58	5	0.23	24	
UK	8971	FOWEY	-4.63	50.33	75	0.16	32	*
UK	1267	FYVIE CASTLE	-2.38	57.45	55	0.54	26	
UK	5271	GATWICK	-0.18	51.15	59	0.40	37	
UK	6418	GLASGOW (SPRINGBURN)	-4.23	55.88	107	0.54	32	
UK	6745	GLENLEE	-4.18	55.10	55	0.54	24	
UK	1115	GLENLIVET	-3.35	57.35	215	0.97	40	
UK	6764	GLENLOCHAR BARRAGE	-3.98	54.97	47	0.44	38	
UK	1866	GLENTRESS	-3.13	55.65	165	0.62	17	
UK	5331	GOUDHURST	0.45	51.07	85	0.46	35	
UK	1041	GRANTOWN-ON-SPEY	-3.60	57.33	220	0.99	28	
UK	5076	GREENWICH	0.00	51.48	7	0.36	30	
UK	4567	GRENDON UNDERWOOD	-1.02	51.75	67	0.48	33	
UK	7229	GRIZEDALE	-3.02	54.35	91	0.71	37	
UK	9912	GUERNSEY AIRPORT	-2.60	49.43	101	0.37	46	
UK	5028	HAMPSTEAD	-0.18	51.57	137	0.64	36	
UK	2194	HARTLEPOOL	-1.20	54.68	9	0.47	27	
UK	5490	HASTINGS	0.57	50.85	45	0.47	35	
UK	7467	HAWARDEN BRIDGE	-3.02	53.20	5	0.35	38	
UK	8603	HAWKRIDGE	-3.60	51.08	314	0.63	34	*
UK	2034	HAYDON BRIDGE	-2.25	54.97	82	0.60	31	
UK	5680	HAYLING ISLAND	-0.98	50.78	4	0.24	37	
UK	5113	HEATHROW	-0.45	51.48	25	0.35	46	
UK	9288	HELENS BAY	-5.75	54.67	43	0.37	36	
UK	6214	HELENSBURGH (6213 TO 1980)	-4.72	56.02	96	0.59	38	*
UK	2337	HIGH MOWTHORPE	-0.63	54.10	175	0.76	38	

UK	9238	HILLSBOROUGH	-6.07	54.45	116	0.36	38	
UK	4043	HUDDERSFIELD (OAKES)	-1.83	53.65	232	0.96	31	
UK	2361	HULL	-0.35	53.75	2	0.39	38	
UK	5588	HURLEY	-0.82	51.53	43	0.36	32	
UK	5603	HURN	-1.83	50.78	10	0.32	39	
UK	8829	ILFRACOMBE	-4.13	51.20	8	0.27	20	
UK	588	INVERNESS	-4.22	57.48	4	0.50	20	
UK	437	INVERPOLLY	-5.25	58.07	14	0.40	33	
UK	1264	INVERURIE	-2.37	57.27	54	0.48	28	
UK	533	ISLE OF RHUM	-6.28	57.02	5	0.37	38	
UK	9970	JERSEY (ST HELIER)	-2.10	49.20	54	0.36	21	
UK	9965	JERSEY AIRPORT	-2.20	49.20	84	0.48	24	
UK	4617	KEELE	-2.27	53.00	179	0.57	38	
UK	1989	KELSO	-2.42	55.60	34	0.52	30	*
UK	2007	KIELDER CASTLE	-2.57	55.23	201	0.96	38	
UK	1479	KINDROGAN	-3.55	56.75	259	1.18	24	
UK	1057	KINLOSS	-3.57	57.65	5	0.44	40	
UK	1516	KINROSS	-3.42	56.22	116	0.39	18	*
UK	154	KIRKWALL	-2.90	58.95	26	0.37	39	
UK	7366	KNUTSFORD	-2.35	53.30	65	0.36	35	
UK	7947	LAKE VYRNWY	-3.47	52.75	303	0.89	27	
UK	5647	LECKFORD	-1.45	51.12	117	0.47	38	
UK	2245	LEEMING	-1.53	54.30	32	0.41	31	
UK	44	LERWICK (STEVENSON SCREEN)	-1.18	60.13	82	0.49	40	
UK	1577	LEUCHARS	-2.87	56.38	10	0.34	40	
UK	7665	LOGGERHEADS	-3.20	53.15	210	0.65	36	
UK	8678	LONG ASHTON	-2.67	51.43	51	0.23	29	*
UK	5687	LONG SUTTON	-0.93	51.20	145	0.40	30	
UK	1079	LOSSIEMOUTH	-3.32	57.72	6	0.34	30	
UK	9515	LOUGH NAVER FOREST	-7.90	54.43	126	0.55	35	
UK	9347	LOUGHGALL	-6.60	54.40	25	0.28	34	
UK	3197	LOWESTOFT	1.75	52.50	25	0.34	38	
UK	9167	LOWTOWN	-6.02	54.83	213	0.92	30	
UK	5848	LYNEHAM	-1.98	51.50	145	0.32	40	*
UK	7384	MACCLESFIELD	-2.13	53.27	143	0.47	38	
UK	6040	MACHRIHANISH	-5.70	55.43	10	0.15	31	
UK	4017	MALHAM TARN	-2.17	54.10	381	0.98	25	
UK	4813	MALVERN	-2.32	52.12	62	0.51	35	
UK	5396	MANSTON	1.35	51.35	44	0.33	35	
UK	3024	MARHAM	0.55	52.65	21	0.33	37	
UK	5877	MARLBOROUGH	-1.73	51.42	129	0.37	27	
UK	5666	MARTYR WORTHY	-1.27	51.10	84	0.26	36	
UK	5255	MICKLEHAM	-0.32	51.27	55	0.53	33	
UK	8132	MILFORD HAVEN C.B.	-5.05	51.70	37	0.31	31	
UK	3357	MONK'S WOOD	-0.23	52.40	41	0.37	33	
UK	1398	MONTROSE	-2.48	56.75	55	0.37	32	
UK	7239	MORECAMBE	-2.87	54.07	7	0.12	19	*
UK	4463	MORETON MORRELL	-1.55	52.20	85	0.46	30	
UK	3063	MORLEY ST BOTOLPH	1.05	52.55	46	0.55	26	
UK	9260	MURLOUGH	-5.85	54.25	12	0.28	19	
UK	1351	MYLNEFIELD	-3.07	56.45	31	0.39	38	
UK	1008	NAIRN	-3.90	57.58	8	0.33	38	
UK	8424	NEATH	-3.85	51.65	62	0.29	33	*
UK	8633	NETTLECOMBE	-3.35	51.13	96	0.48	28	*
UK	4787	NEWPORT (SALOP)	-2.43	52.77	64	0.57	30	
UK	7071	NEWTON RIGG	-2.78	54.67	171	0.51	38	



UK	4316	NEWTOWN LINFORD	-1.22	52.68	119	0.51	38	
UK	561	ONICH	-5.22	56.72	15	0.31	36	*
UK	8142	ORIELTON	-4.95	51.65	60	0.40	30	
UK	4522	OXFORD (L.P.M.S.)	-1.27	51.77	63	0.39	37	
UK	6366	PAISLEY	-4.43	55.85	32	0.37	38	
UK	9157	PARKMORE FOREST	-6.12	55.02	235	0.90	30	
UK	1641	PENICUIK	-3.22	55.83	185	0.61	38	
UK	4643	PENKRIDGE	-2.10	52.70	101	0.50	33	
UK	8411	PENMAEN	-4.12	51.58	87	0.36	29	*
UK	6837	PENWHIRN	-4.92	54.98	166	0.70	37	
UK	8913	PENZANCE	-5.53	50.12	19	0.23	33	*
UK	4833	PERSHORE COLL. OF HORTICULTURE	-2.05	52.10	40	0.40	38	
UK	8811	PLYMOUTH (MOUNT BATTEN)	-4.12	50.35	27	0.27	36	
UK	6989	POINT OF AYRE	-4.37	54.42	9	0.15	34	*
UK	8785	POOLE	-1.98	50.75	5	0.12	30	*
UK	434	POOLEWE	-5.60	57.77	6	0.48	31	
UK	537	PRABOST	-6.32	57.47	67	0.47	30	
UK	7245	PRESTON (MOOR PARK)	-2.70	53.77	33	0.30	38	*
UK	4886	PRESTON WYNNE	-2.65	52.12	84	0.48	38	
UK	6547	PRESTWICK	-4.58	55.50	16	0.27	35	
UK	8834	PRINCETOWN	-3.98	50.55	453	1.39	14	
UK	2027	REDESDALE	-2.27	55.25	235	0.80	27	
UK	8471	RHOOSE	-3.33	51.40	65	0.27	39	*
UK	7377	RINGWAY	-2.27	53.35	75	0.32	46	
UK	6921	RONALDSWAY	-4.63	54.08	16	0.17	39	
UK	6169	ROTHESAY	-5.07	55.83	43	0.27	36	
UK	4495	RUGBY	-1.25	52.37	117	0.61	26	
UK	4757	SHAWBURY	-2.67	52.80	72	0.43	40	
UK	4061	SHEFFIELD (LPMS)	-1.48	53.38	131	0.73	38	
UK	3671	SHOEBURYNES	0.82	51.53	2	0.36	25	
UK	2295	SILPHO MOOR	-0.52	54.33	203	0.82	27	
UK	3454	SILSOE	-0.42	52.02	59	0.40	30	
UK	2494	SKEGNESS	0.35	53.15	5	0.34	33	*
UK	8851	SLAPTON	-3.67	50.28	32	0.39	35	
UK	5670	SOUTHSEA	-1.10	50.80	2	0.37	37	
UK	8957	ST MAWGAN	-5.00	50.43	103	0.23	37	
UK	1789	ST. ABBS HEAD	-2.13	55.92	75	0.15	17	*
UK	1823	STANHOPE FARM	-3.40	55.55	226	0.51	32	
UK	3626	STANSTED	0.22	51.88	101	0.37	39	
UK	4636	STONE	-2.18	52.88	107	0.41	32	
UK	9268	STORMONT CASTLE	-5.80	54.58	56	0.52	38	
UK	425	STORNOWAY	-6.32	58.22	15	0.29	40	
UK	4432	STRATFORD-UPON-AVON	-1.77	52.18	49	0.37	38	
UK	4201	SUTTON BONINGTON	-1.25	52.83	48	0.46	19	*
UK	3007	TERRINGTON ST CLEMENT	0.30	52.75	2	0.21	38	
UK	6772	THREAVE	-3.95	54.93	73	0.56	36	
UK	6007	TIREE	-6.88	56.50	9	0.13	40	
UK	8864	TORBAY (TORQUAY)	-3.53	50.47	15	0.27	38	
UK	8076	TRAWSCOED	-3.95	52.33	63	0.48	32	*
UK	7824	TRAWSFYNYDD	-3.93	52.93	193	0.47	34	
UK	1634	TURNHOUSE	-3.35	55.95	35	0.39	39	
UK	2091	TYNEMOUTH	-1.42	55.02	30	0.29	39	
UK	5874	UPAVON	-1.77	51.30	179	0.39	32	
UK	8555	USK	-2.92	51.70	21	0.66	21	
UK	7511	VALLEY/HOLYHEAD	-4.53	53.25	10	0.16	34	
UK	2423	WADDINGTON	-0.52	53.17	68	0.50	46	

UK	5558	WALLINGFORD	-1.10	51.62	48	0.39	33	
UK	4662	WALSALL	-1.92	52.62	163	0.59	36	
UK	4237	WARSOP	-1.12	53.22	46	0.47	24	
UK	4206	WATNALL (NOTTINGHAM)	-1.25	53.00	117	0.53	38	
UK	3144	WATTISHAM	0.97	52.12	89	0.33	38	*
UK	1838	WEST LINTON	-3.35	55.75	244	0.58	36	
UK	2299	WHITBY COASTGUARD	-0.60	54.48	60	0.25	19	
UK	1747	WHITCHESTER	-2.45	55.82	255	1.15	27	
UK	1379	WHITEHILLOCKS	-2.90	56.92	258	1.18	34	
UK	293	WICK	-3.08	58.45	36	0.53	37	
UK	5771	WIGHT VENTNOR PARK	-1.22	50.60	60	0.21	20	
UK	8752	WINFRITH	-2.25	50.67	26	0.26	29	*
UK	5237	WISLEY	-0.47	51.32	32	0.41	37	
UK	3414	WOBURN	-0.58	52.02	89	0.40	38	
UK	9185	WOODBURN NORTH	-5.88	54.75	217	0.64	16	
UK	3644	WRITTLE	0.43	51.73	35	0.30	38	*
UK	5375	WYE	0.95	51.18	56	0.45	38	
UK	3374	WYTON	-0.12	52.35	40	0.27	25	
UK	8673	YEOVILTON	-2.63	51.00	18	0.46	33	

#### A4.2 European Exceptional Snow Loads Data Set

Below is listed the whole European exceptional snow data set, with the exceptional value (as defined in section 4.3.5), its date of occurrence and the characteristic values calculated with and without taking into account the maximum value of the data set.

Table A4.2 European Exceptional Snow Loads Data

Country	Stat ID	Station Name	Longitude	Latitude	Altitude	Total No. Winters	*Total No of Snow Winters	Max Snow Load kN/m <sup>2</sup>	Date of Max Load	Calculated 50yr Load kN/m <sup>2</sup> (inc Max Load)	Calculated 50yr Load kN/m <sup>2</sup> (exc Max Load)	k (= Max Load/ 50 yr Load (exc Max))
W Germany	1055	NORDERNEY	7.15	53.72	11	18	15	1.56	22/02/79	1.51	0.84	1.86
W Germany	1438	SCHLESWIG	9.55	54.53	43	33	32	2.37	19/02/79	1.60	0.93	2.55
W Germany	1459	HAMBURG-FUHLS	10.00	53.63	13	33	32	1.82	15/02/79	1.23	0.71	2.56
W Germany	1473	BEDERKESA	8.83	53.63	27	18	17	1.52	16/02/79	1.42	0.81	1.88
W Germany	1474	BREMEN	8.80	53.05	4	32	30	1.53	18/02/79	1.05	0.59	2.59
W Germany	1478	CUXHAVEN	8.70	53.87	5	31	24	1.48	01/03/79	1.11	0.66	2.24
W Germany	1529	SOLTAU	9.83	53.00	77	25	25	1.26	19/02/79	1.07	0.75	1.68
W Germany	1538	HANNOVER-LANG	9.68	52.47	55	33	31	1.23	24/02/79	0.90	0.61	2.02
W Germany	3810	KIEL - KRONSHAGEN	10.10	54.33	17	33	31	1.78	15/02/79	1.22	0.71	2.51
W Germany	32140	NORDEN	7.22	53.60	2	12	12	1.07	19/02/79	1.13	0.39	2.74
W Germany	48601	TOSTEDT	9.72	53.28	58	27	26	1.47	16/02/79	1.16	0.75	1.95
W Germany	56128	VISSELHOEVEDE	9.58	52.98	58	27	24	1.54	17/02/79	1.17	0.66	2.35
E Germany	3005	ARKONA	13.43	54.68	42	44	38	1.29	16/11/65	0.88	0.63	2.03
E Germany	3038	SCHWERIN	11.38	53.65	59	92	81	1.41	07/01/50	0.85	0.72	1.95
E Germany	3342	POTSDAM	13.07	52.38	81	102	99	1.61	06/03/50	1.02	0.92	1.76
Austria	15310	MOOSERBODEN	12.72	47.17	2036	49	49	21.18	apr-55	14.28	11.05	1.92
Austria	1900	SCHWARZENAU	15.27	48.73	500	37	37	3.09	feb-63	2.20	1.58	1.96
Austria	13110	SECKAU	14.78	47.28	874	50	50	3.90	feb-86	2.88	2.41	1.62
Austria	20021	VILLACHERALPE	13.67	46.60	2140	50	50	25.55	mar-51	16.31	12.12	2.11
Austria	16101	ZELTWEIG	14.78	47.20	669	35	35	3.66	feb-86	2.80	2.12	1.72
Italy	Parma 33	VEDRIANO	10.45	44.52	590	51	38	10.20	feb. 69	5.79	2.53	4.03
Italy	Genova 38	PONTREMOLI	9.92	44.37	215	41	17	1.88	jan. 85	1.56	1.12	1.67
Italy	Pisa 53	PISTOIA	10.95	43.93	58	51	26	1.30	jan. 40	0.99	0.79	1.64
Italy	Torino 20	VERCELLI	8.40	45.33	135	41	21	1.13	jan. 54	0.91	0.69	1.64
Italy	Cagliari 96	SORGONO	9.13	40.03	687	14	5	0.50	dec. 52	0.73	0.29	1.72
Italy	Palermo 89	CACCAMO	13.70	37.93	521	41	18	1.88	jan. 68	1.58	1.21	1.55
Italy	Roma 59	ORVIETO	12.02	42.72	315	31	3	0.55	jan. 65	0.73?	0.24	2.32
Italy	Palermo 92	BIVONA	13.47	37.62	503	41	8	0.68	jan. 68	0.60	0.20	3.33

Country	Stat ID	Station Name	Longitude	Latitude	Altitude	Total No. Winters	*Total No. of Snow Winters	Max Snow Load kN/m2	Date of Max Load	Calculated 50yr Load kN/m2 (inc Max Load)	Calculated 50yr Load kN/m2 (exc Max Load)	k (= Max Load/ 50 yr Load (exc Max))
France	33281001	BORDEAUX	-0.70	44.83	61	44	20	0.74	1956	0.59	0.21	3.57
France	59183001	DUNKERQUE	2.33	51.05	23	44	30	0.34	1970	0.31	0.21	1.64
France	66136001	PERPIGNAN	2.87	42.73	48	42	19	1.25	1954	1.04	0.56	2.24
France	64549001	PAU	-0.42	43.38	185	44	30	0.52	1987	0.40	0.26	1.94
France	78621001	TRAPPES	2.02	48.77	168	48	45	0.81	1946	0.56	0.37	2.20
France	38384001	GRENOBLE	5.33	45.37	386	25	25	1.09	1990	1.02	0.66	1.64
France	608801	NICE	7.20	43.65	10	42	9	0.56	1985	0.53	0.15	3.80
France	44103001	ST NAZAIRE	-2.17	47.32	4	35	20	0.29	1986	0.25	0.10	2.86
France	29216001	QUIMPER	-4.17	47.97	94	25	14	0.41	1990	0.40	0.19	2.15
France	13055004	CAP POMEQUES	5.30	43.27	73	42	4	0.25	1963	0.24	0.04	5.67
France	40046001	BISCAROSSE	-0.70	44.83	39	36	14	0.82	1956	0.75	0.29	2.80
France	20107001	CAP CORSE	9.37	43.00	111	41	4	0.44	1985	0.43	0.21	2.14
France	612101	CAP FERRAT	7.33	43.68	143	42	3	0.15	1963	0.13	0.07	2.00
France	33236002	CAP FERRET	-1.25	44.63	10	40	12	1.18	1956	1.06	0.31	3.81
France	33529001	CAZAUX	-1.13	44.53	33	43	22	0.59	1956	0.47	0.19	3.08
France	83069001	HYERES	6.15	43.10	4	27	4	0.15	1985	0.18	0.12	1.25
France	29155001	ILE-d'OUESSANT	-5.12	48.47	32	41	12	0.24	1956	0.21	0.13	1.78
France	56069001	ILE - de- GROIX	-3.50	47.65	54	44	4	0.15	1962	0.13	0.07	2.00
France	95277001	LE BOURGET	2.45	48.97	65	47	41	0.59	1946	0.41	0.25	2.35
Belgium	479	KLEINE BROGEL	5.28	51.10	64	12	10	1.03	1990	1.07	0.60	1.71
Greece	64	ATROXORI	21.28	39.27	560	24	24	2.01	1940	1.67	1.19	1.69
Greece	265	AXLADIA	24.02	41.40	600	22	22	1.28	1940	1.03	0.62	2.04
Greece	199	METAXAS	21.97	40.08	1040	23	23	1.34	1940	1.14	0.84	1.60
Portugal	82	GUARDA	-7.27	40.53	1019	51	20	1.47	10/02/78	0.9559	0.3402	4.33
Portugal	75	WISEU	-7.90	40.67	443	51	7	1.55	29/12/70	1.2519	0.3748	4.12
Portugal	212	ALVEGA	-8.05	39.47	51	42	3	0.74	18/01/86	0.8126	0.2045	3.60
Portugal	44	CARRAZEDA	-7.30	41.23	715	14	12	0.74	06/01/94	0.7786	0.2328	3.16
		ANSIAENS										
Portugal	70	FIGUEIRA DE CASTELO	-6.90	40.87	635	43	14	0.74	19/10/85	0.5753	0.2598	2.83
Portugal	32	MIRANDELA	-7.20	41.52	250	59	3	0.20	15/01/87	0.1750	0.0705	2.78
Portugal	35	MIRANDA DO DOURO	-6.28	41.52	693	52	15	0.41	02/01/72	0.2982	0.1642	2.49
Portugal	23	BRAGA/POSTO AGRARIO	-8.40	41.55	190	54	4	0.13	15/01/87	0.1140	0.0549	2.34
Portugal	37	MOGADOURO	-6.73	41.33	644	14	10	0.74	06/01/94	0.8884	0.3996	2.17
Portugal	61	BIGORNE	-7.88	41.00	975	36	10	1.47	27/12/84	1.3617	0.7483	1.97
Portugal	52	REGUA	-7.80	41.17	65	53	3	0.07	28/12/70	0.0688	0.0386	1.90
Portugal	571	PORTALEGRE	-7.42	39.28	597	54	10	0.37	12/02/83	0.3034	0.2270	1.62
Spain	2440	ALDEADEL REY	-4.70	40.57	1160	62	53	1.49	21/01/96	0.8523	0.6169	2.42
		NIÑO'DEHESA GU-TE										
Spain	7219	ALHAMA HUERTA	-1.52	37.85	760	64	13	0.89	19/01/57	0.6257	0.3944	2.25
		ESPUÑA										

Country	Stat ID	Station Name	Longitude	Latitude	Altitude	Total No. Winters	*Total No. of Snow Winters	Max Snow Load kN/m2	Date of Max Load	Calculated 50yr Load kN/m2 (inc Max Load)	Calculated 50yr Load kN/m2 (exc Max Load)	k (= Max Load/ 50 yr Load (exc Max))
Spain	4563	ALMONASTERLA REAL	-6.79	37.87	610	45	7	0.34	15/12/75	0.3019	0.1090	3.15
Spain	9491	ALMUDEVAR-GRANJA CHE	-0.59	42.02	390	59	20	0.55	17/01/46	0.3853	0.2702	2.03
Spain	4524	AROCHE	-6.95	37.94	421	48	3	0.06	20/01/52	0.0623	0.0416	1.51
Spain	72	BEGAS	1.93	41.33	360	39	12	0.74	24/12/62	0.6476	0.4081	1.80
Spain	7155	BLANCA CASAFORRESTAL	-1.32	38.18	240	48	6	0.43	18/12/46	0.3857	0.2231	1.91
Spain	4503	CABEZA LA VACA	-6.42	38.09	759	56	23	0.65	11/02/51	0.4301	0.2611	2.47
Spain	3469	CACERESCIUDAD	-6.37	39.48	459	77	5	0.07	19/01/46	0.0513	0.0381	2.04
Spain	4155A	CALZADACALATRAVA'C OOPER.'	-3.77	38.70	645	41	18	0.64	28/12/70	0.4649	0.1904	3.35
Spain	9246	CARCASTILLOLA OLIVA	-1.46	42.37	340	61	37	0.58	15/01/45	0.3815	0.3000	1.92
Spain	4037	DAIMIEL'L.L.'	-3.60	39.07	615	40	14	0.74	16/01/57	0.6184	0.3874	1.90
Spain	9833	EL GRADO'EMBALSE'	0.23	42.15	425	53	12	0.72	04/01/79	0.5369	0.2698	2.65
Spain	7109	EMBALSE DE CAMARILLAS	-1.64	38.34	397	60	7	0.57	08/02/42	0.4639	0.3390	1.69
Spain	8290	ENGUERALASARENAS	-0.80	38.92	826	54	14	0.77	22/01/50	0.5881	0.3989	1.92
Spain	9432	EPILA'MONTARRON'	-1.29	41.60	336	33	18	0.54	06/12/50	0.4871	0.3271	1.65
Spain	9704	GABETCENTRAL	0.89	42.10	380	48	34	1.43	24/02/44	1.0680	0.8807	1.63
Spain	3384	GARVIN DE LA JARA'EL PLANCHON'	-5.36	39.69	690	30	15	1.09	19/02/92	0.9772	0.5928	1.84
Spain	5514	GRANADA/BASE AEREA	-3.63	37.14	680	47	8	0.39	28/12/70	0.3400	0.2106	1.84
Spain	4511	JEREZDELOS CABALLEROS	-6.77	38.32	492	70	7	0.11	27/12/50	0.0829	0.0589	2.07
Spain	6258	LANJARON	-3.49	36.92	710	50	9	0.58	19/01/57	0.4769	0.2525	2.30
Spain	4020	LLANOS DELCAUDILLO	-3.37	39.11	650	34	14	0.66	11/03/75	0.5766	0.3430	1.92
Spain	9170	LOGROÑO-AGONCILLO	-2.33	42.45	352	49	14	0.30	10/12/90	0.2417	0.1760	1.68
Spain	7208	LORCACH SEGURA	-1.70	37.67	335	62	6	0.38	18/12/46	0.2860	0.1491	2.52
Spain	7209	LORCAEST CEREALICULTURA	-1.69	37.65	320	43	4	0.49	13/04/58	0.5018	0.2651	1.85
Spain	9941	MAZALEON	0.10	41.05	359	33	13	0.69	06/01/77	0.6201	0.3657	1.88
Spain	2604	MEDINA DE RIOSECO	-5.04	41.88	749	54	48	0.33	12/01/87	0.2359	0.2051	1.61
Spain	7065	MOLINICOS	-2.24	38.46	823	55	25	0.82	14/01/80	0.6056	0.4727	1.74
Spain	1679A	MONFORTEDELEMONS 'E.AGRICOLA'	-7.51	42.52	963	42	5	0.13	11/02/83	0.1284	0.0750	1.70
Spain	392	OLOT'ESTACION DEPURADORA'	2.49	42.20	380	34	10	1.41	23/01/92	1.3740	0.8915	1.58
Spain	3422	PANTANOROSARITO	-5.32	40.11	334	36	3	0.18	10/03/71	0.2182	0.0560	3.24
Spain	7211	PUERTO LUMBRERAS CH SEGURA	-1.81	37.56	465	57	9	0.55	18/01/57	0.4216	0.2283	2.43
Spain	2377	RIBASDECAMPOS	-4.52	42.15	777	51	38	0.54	12/11/84	0.3720	0.2906	1.85

'VIVERO'												
Country	Stat ID	Station Name	Longitude	Latitude	Altitude	Total No. Winters	*Total No. of Snow Winters	Max Snow Load kN/m2	Date of Max Load	Calculated 50yr Load kN/m2 (inc Max Load)	Calculated 50yr Load kN/m2 (exc Max Load)	k (= Max Load/ 50 yr Load (exc Max))
Spain	3082	SALTODEBOLARQUE	-2.83	40.36	620	36	27	0.37	04/04/88	0.3004	0.2416	1.51
Spain	173	SANTAMARGARITA DEMOMBUY	1.59	41.55	400	44	8	2.63	24/02/44	2.3264	1.1939	2.20
Spain	1428	SANTIAGOCOMPOSTELA 'LABACOLLA'	-8.42	42.89	364	45	11	0.54	05/02/63	0.4650	0.3152	1.71
Spain	9174	SARTAGUDA	-2.05	42.36	310	73	28	0.98	16/01/41	0.5715	0.3529	2.78
Spain	7081	SOCOVS	-1.98	38.33	750	56	21	1.16	24/12/44	0.8783	0.6914	1.68
Spain	4097	SOCUELLAMOS	-2.79	39.28	674	33	15	0.45	28/12/70	0.4090	0.2890	1.56
Spain	132	SOLSONA	1.52	42.00	677	43	21	0.84	04/02/59	0.6858	0.5936	1.58
Spain	9708	TERRAETS 'EMBALSE'	0.89	42.04	399	49	29	1.33	24/02/44	0.8806	0.5501	2.43
Spain	9971	TIVISSA	0.73	41.04	310	80	25	1.27	11/01/41	0.9194	0.8241	1.54
Spain	7214	TOTANA ALQUERIAS	-1.57	37.83	799	62	13	0.81	20/01/57	0.5438	0.2225	3.66
Spain	7217	TOTANA PRESA DEL PARETON	-1.45	37.72	200	65	5	0.47	18/01/57	0.3694	0.2944	1.59
Spain	4331	VILLANUEVADE LA SERENA	-5.79	38.97	294	43	5	0.11	03/01/71	0.1062	0.0526	2.05
Spain	7061	YESTEC.H.S.	-2.31	38.37	900	54	28	0.98	19/12/46	0.7638	0.6522	1.51
Spain	7206	ZARZADILLADE TOTANA	-1.70	37.87	861	50	11	0.71	13/01/80	0.5699	0.4378	1.62
UK	329	CAPE WRATH	-5.00	58.62	112	39	100	0.55	dec-95	0.3654	0.2854	1.92
UK	561	ONICH	-5.22	56.72	15	36	130	0.49	jan-84	0.3638	0.3089	1.57
UK	1467	FASKALLY	-3.77	56.72	94	38	238	1.02	jan-72	0.6461	0.5332	1.91
UK	1516	KINROSS	-3.42	56.22	116	18	65	0.64	jan-87	0.7088	0.3921	1.64
UK	1699	DUNBAR	-2.52	56.00	23	37	46	0.39	nov-73	0.3058	0.2352	1.67
UK	1789	ST. ABBS HEAD	-2.13	55.92	75	17	24	0.28	feb-78	0.2603	0.1490	1.89
UK	1989	KELSO	-2.42	55.60	34	30	108	1.41	feb-72	0.8907	0.5159	2.74
UK	2494	SKEGNESS	0.35	53.15	5	33	48	0.56	dec-68	0.4454	0.3403	1.66
UK	3144	WATTISHAM	0.97	52.12	89	38	104	0.52	feb-91	0.3921	0.3293	1.57
UK	3644	WRITTLE	0.43	51.73	35	38	75	0.58	feb-91	0.3983	0.3011	1.93
UK	3691	CLACTON-ON-SEA	1.15	51.78	16	36	48	0.55	feb-91	0.4422	0.3497	1.57
UK	4088	ASKHAM BRYAN	-1.17	53.92	32	38	126	0.52	jan-63	0.3811	0.3215	1.61
UK	4201	SUTTON BONINGTON	-1.25	52.83	48	19	48	0.94	jan-87	0.7465	0.4579	2.05
UK	4504	BRIZE NORTON	-1.58	51.75	81	29	65	0.47	jan-82	0.3623	0.2744	1.71
UK	5336	EAST MALLING	0.45	51.28	33	37	77	0.82	dec-62	0.5473	0.3199	2.55
UK	5411	BOGNOR REGIS	-0.68	50.78	7	33	31	0.36	dec-62	0.2870	0.2039	1.77
UK	5471	EASTBOURNE	0.28	50.77	7	20	23	0.38	jan-87	0.3544	0.2258	1.67
UK	5480	BEXHILL	0.47	50.83	4	37	42	0.78	dec-62	0.6336	0.3168	2.48
UK	5612	CHRISTCHURCH	-1.78	50.73	4	29	32	0.47	feb-78	0.3842	0.2635	1.79
UK	5631	EVERTON	-1.57	50.73	16	38	35	0.55	jan-82	0.4422	0.3340	1.64
UK	5848	LYNEHAM	-1.98	51.50	145	40	98	0.55	jan-63	0.3921	0.3199	1.72

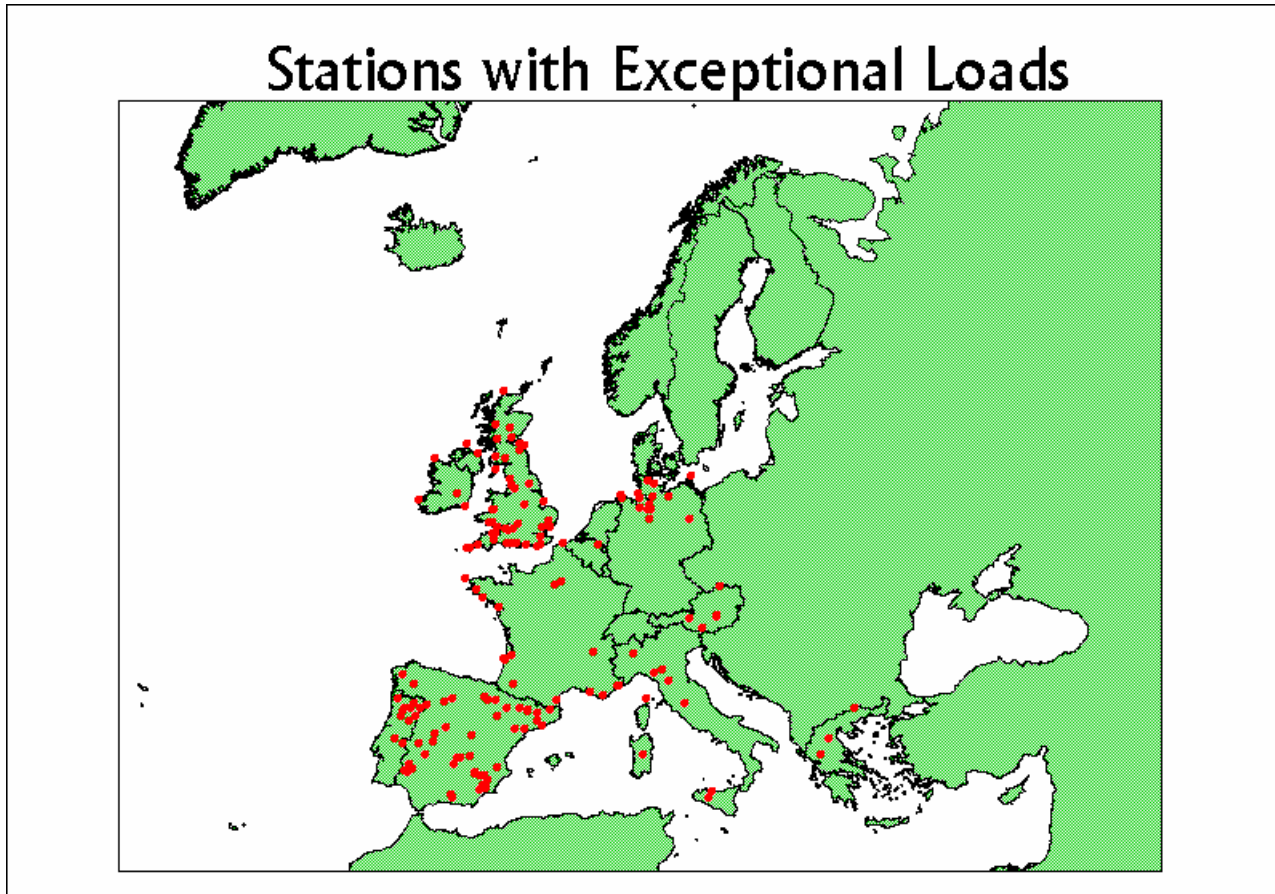
UK	6214	HELENSBURGH	-4.72	56.02	96	38	187	0.93	jan-84	0.6853	0.5943	1.56
Country	Stat ID	Station Name	Longitude	Latitude	Altitude	Total No. Winters	*Total No. of Snow Winters	Max Snow Load kN/m2	Date of Max Load	Calculated 50yr Load kN/m2 (inc Max Load)	Calculated 50yr Load kN/m2 (exc Max Load)	k (= Max Load/ 50 yr Load (exc Max))
UK	6641	DUMFRIES	-3.60	55.07	49	27	74	0.94	feb-96	0.6179	0.3905	2.41
UK	6704	BARGRENNAN	-4.57	55.07	110	37	131	0.72	jan-84	0.5504	0.4705	1.53
UK	6989	POINT OF AYRE	-4.37	54.42	9	34	9	0.31	feb-58	0.2838	0.1521	2.06
UK	7239	MORECAMBE	-2.87	54.07	7	19	29	0.30	feb-96	0.2446	0.1208	2.47
UK	7245	PRESTON (MOOR PARK)	-2.70	53.77	33	38	65	0.47	dec-81	0.3654	0.2964	1.59
UK	7263	BOLTON	-2.42	53.60	107	24	76	1.02	jan-84	0.7716	0.5614	1.82
UK	8076	TRAWSCOED	-3.95	52.33	63	32	27	0.78	jan-79	0.6649	0.4783	1.64
UK	8086	CWMSTYTH	-3.82	52.35	301	20	55	1.32	feb-63	1.0178	0.4736	2.78
UK	8411	PENMAEN	-4.12	51.58	87	29	29	0.94	jan-82	0.6869	0.3560	2.64
UK	8424	NEATH	-3.85	51.65	62	33	17	0.63	jan-82	0.5112	0.2933	2.14
UK	8471	RHOOSE	-3.33	51.40	65	39	57	0.61	feb-78	0.4579	0.2697	2.27
UK	8603	HAWKRIDGE	-3.60	51.08	314	34	116	0.97	feb-78	0.7527	0.6336	1.53
UK	8633	NETTLECOMBE	-3.35	51.13	96	28	35	0.94	feb-78	0.7386	0.4830	1.95
UK	8678	LONG ASHTON	-2.67	51.43	51	29	38	0.60	jan-63	0.4689	0.2290	2.60
UK	8697	BATH	-2.37	51.37	118	38	55	0.83	jan-82	0.5159	0.3121	2.66
UK	8752	WINFRITH	-2.25	50.67	26	29	20	0.63	feb-78	0.5003	0.2635	2.38
UK	8785	POOLE	-1.98	50.75	5	30	21	0.47	feb-78	0.3419	0.1239	3.80
UK	8884	EXETER	-3.42	50.73	32	34	32	0.50	feb-78	0.4328	0.3309	1.52
UK	8913	PENZANCE	-5.53	50.12	19	33	19	0.47	jan-87	0.3811	0.2258	2.08
UK	8922	CULDROSE	-5.25	50.08	78	33	17	0.47	jan-87	0.3921	0.2337	2.01
UK	8971	FOWEY	-4.63	50.33	75	32	26	0.31	jan-85	0.2478	0.1600	1.96
N. Ireland	9147	ALTNAHINCH FILTERS	-6.25	55.05	213	31	200	0.96	dec-67	0.7041	0.5959	1.61
Eire	1	MALIN HEAD	-7.39	55.42	27	41	40	0.60	jan-58	0.3340	0.1208	4.94
Eire	2	VALENTIA	-10.34	52.00	12	58	16	0.19	jan-58	0.1317	0.0643	2.93
Eire	6	BELMULLET	-10.00	54.33	11	39	34	0.27	jan-58	0.1772	0.1019	2.62
Eire	8	ROSSLARE	-6.33	52.25	23	37	20	0.28	jan-85	0.2431	0.1725	1.64
Eire	11	KILKENNY	-7.29	52.80	66	40	59	0.28	feb-62	0.2195	0.1772	1.59

\* For UK and Eire stations the entry in this column is the total number of snow events that have occurred in the recording period. The average number of events per year is obtained by dividing this number by the total number of winters (in the adjacent column to the left). Where this is less than 1 snowless winters have occurred. For example Valentia (Eire) has 16 events in 58 years, therefore the average number of events per year is 0.28 or approximately 1 event in 4 years or 14 snow years in 58. This allows comparison with those stations that use annual maxima for their data processing.

### *A4.3 Location of stations where exceptional values have been encountered*

The following figure illustrates the location of the European climatic stations where exceptional snow loads values have been encountered.

*Figure A4.1 Location of climatic station with exceptional snow loads*





## A5 GIS Tools in Data Handling / Mapping

The main GIS tool used for integrating, managing and mapping the snow load data from the project participants was ARC-VIEW (ESRI inc.[18]). This provides facilities for importing the tabular data and displaying them on maps, interrogating them via map or table, identifying and editing obvious errors, and printing with legends etc. The snow load data can also be superimposed on different background maps, available from the Commission's EUROSTAT/GISCO database, which includes in particular layers for the national and regional boundaries, major cities, rivers and lakes.

The associated module SPATIAL ANALYST (ESRI inc.[18]) provided additional facilities for handling gridded data, and performing contouring using Inverse Distance Weighting and Splines.

A grid of altitude data was obtained from the U.S. EROS data center. This is the European Digital Elevation Model and consists of height values on a grid of 30 sec by 30 sec for the whole of Europe. This corresponds to a spacing of typically 1 km or less, and while this is too detailed for much of this snow load work, grids of reduced resolution were conveniently produced using the ARC-INFO GRID module available at the JRC. This altitude data was essential for converting the map of snow load zones into a grid of actual snow load values.

Snow Load data were delivered in Latitude/Longitude coordinates (decimal degrees). When projected data were required, for display purposes or for working in metres/kilometres on the ground, then the European Commission's standard projection was used, which is specified as follows:

Projection:	Lambert Azimuth
Units:	Meters
Spheroid:	INT1909
Radius:	6370997.0000
Longitude centre of projection:	9.00000 degs.
Latitude centre of projection:	48.00000 degs.
False easting:	0.0
False northing:	0.0

### *A5.1 Methods and tools for Interpolation and Contouring*

Among the different methods for interpolation available for univariate analysis the following were chosen for evaluation:

1. Inverse Distance Weighting (IDW): For this technique the weights of the interpolation function depend only on the distance between the point of interest ( $x_0, y_0$ ) and the neighbouring sampling points ( $x_j, y_j$ ) for  $j = 1, \dots, n$ . This represents a fast and straightforward approach to interpolation, which has been used for climatic variables. One major drawback of this technique is that when two or more sampling points are close to each other the redundant information from these stations are not discriminated against.
2. Kriging: This technique is based on the assumption that points closer together are more likely to be similar and that this spatial relationship can be explored and modelled (Variogram) in order to determine the weights that will be assigned in the linear combination of the data. Also this approach allows discrimination against redundant information. The method has been widely used for the spatial analysis of climatic data but is more time-consuming.

3. **Splines:** Splines are piecewise polynomial functions, which is to say that they are fitted to a small number of data points exactly, while at the same time ensuring that the joins between one part of the curve and another are continuous. This technique has been used for the analysis of climatic variables, it is faster than Kriging but usually the available software does not allow much control from the part of the user.

The following software tools for interpolation and contouring were evaluated:

First of all the **Spatial Analyst** for ArcView [18], which presents options for IDW and splines. These functions allow only for basic choices by the user and there is no possibility for model validation.

**Surfer** is commercial software [19] that presents options for all three interpolation techniques presented above and allows for the implementation of a model validation but, there is no possibility of modelling the spatial structure in the data.

**Variowin** [20] allows for the exploration and modelling of the spatial structure of the data (Variogram modelling) as a preliminary step for kriging and is excellent in combination with Surfer.

**Geoeas**, which has been developed by the US-EPA [21], is software for Kriging and Cokriging which also allows for variogram modelling. This is the only software evaluated that has an option for multivariate analysis. Geoeas also presents an option for cross validation. This technique is very useful to highlight problematic areas but it should not be used for final model validation.

In addition to these interpolation tools, the spreadsheet **Excel** was used frequently for data manipulation, conversions and calculations, and two curve fitting programmes **Curve Expert** and **Origin** were used for plotting scattergrams and fitting altitude functions.

A typical sequence in the zoning/mapping process would involve the tools as follows:

- Use **Excel** to view data, convert coordinates, check format and errors
- Import to **ARC-VIEW** to view points on map, correct errors, check coverage
- Use **Curve Expert/Origin** for scattergrams/curve fitting (parameter b)
- Use **Excel** to check range of parameter a, and assign zone numbers to stations
- Use **ARC-VIEW/SPATIAL ANALYST** to interpolate the values to a regular grid and plot contours of zone numbers
- Use **ARC-VIEW/SPATIAL ANALYST** to smooth the interpolated values applying a filter.
- Use **ARC-VIEW** for visual inspection of zone map, editing, marking outstanding points
- Use **ARC-VIEW** to print map of zones

Combining zone maps to produce a final map of snow load values would involve:

- Use **SPATIAL ANALYST** (map algebra function) to convert from zones to snow loads using altitude grid
- Merge grids for regions to make European Map of Snow Loads

## *A5.2 Evaluation of snow load data*

### **Resolution of the information:**

A fundamental aspect in spatial data evaluation is the level of detail. Working mostly with raster data basic information is related to the cell size.

In the present work the grid of altitude data obtained from the U.S. EROS data centre had a resolution of 30 sec by 30 sec for the whole of Europe. This resolution was then reduced to 1 min by 1 min. As most of the analysis was done using projected data with a cell size of 10 Km, the altitude data was converted to this format.

All the analysis was done using this resolution.

### **Interpolation method chosen:**

The evaluation of sparse data points requires an interpolation of these values onto a regular grid. After comparison of the three interpolation methods presented above it was decided to use inverse distance weighting for several reasons:

This method is particularly suitable in cases where it is difficult to model the spatial relationship of the data through a variogram analysis. In fact the dishomogeneous and sometimes low sampling density did not allow a modelling of the spatial relationship.

Furthermore there are several problems in data conversion between the different programs evaluated (a major problem for every kind of data analysis) and this method is available in ArcView/Spatial Analyst.

The low sampling density in fact determined the use of a radius of 100 Km in most of the climatic regions, while the adoption of an exponent equal to 2 assures that major weight is assigned to the points closest to the centre of the new cell.

### **Data smoothing:**

Data smoothing has been obtained using a mean filter. A mean filter operates on gridded data and replaces the value of a single cell by the average value obtained from the value of the cell and the values of the cells in some specified neighbourhood. In the present work the neighbourhood was a rectangle of 30 Km height and width (i.e. a kernel of 3 \* 3 10 Km cells was used). This is a rather small value compared to the radius used for inverse distance weighting (50 - 100 Km) and assures that the smoothing retains the important features of the map.