

Seasonal Bulletin on the Climate in WMO Region VI



- Europe and Middle East -



Autumn 2012

Deutscher Wetterdienst

Last Change: Thu Apr 11 13:58:19
UTC 2013

The following maps are first guess products based on meteorological bulletins which have been quality checked roughly. The text is based upon these maps as well as the monthly climate bulletins of the countries of RA VI as far as they are available on the web. More detailed information including updated analyses of more data which have undergone a better quality control and further aspects like clouds and water vapour may be found on the link of the Regional Climate Centre on Climate Monitoring in RAVI:

[RCC-CM RA VI/](#)

and at the Global Precipitation Climatology Center (GPCC):

[The GPCC](#)

The Seasonal Bulletin on the Climate in WMO Region VI will usually be delivered within 2 months after the end of a season.

Highlights:

- Frequent storm depressions with extremely heavy rain in the Mediterranean during all 3 months.
 - Storm with icing on Iceland in the 1st decade of September
 - Flooding events on the British Isles in September and November, in Finland in early October, in the Ukraine mid of October
 - Autumn storms moving from southern UK over the North Sea, northern Germany to Poland in early October
 - Early cold spell at the end of October with considerable snowfall also in lower locations in the Alps and southern and eastern Germany
 - Tornado in Portugal in November
-

Overview:

Temperature:

In **autumn 2012** Greenland, the Arctic and most of continental Europe except the westernmost parts was warmer than normal while the eastern North Atlantic with the British Isles and Iceland was colder.

In September 2012 most of the region was warmer than normal except the North Atlantic and the adjacent countries: northwestern France, the British Isles and southwestern Scandinavia. The Balkan Peninsula in the southwest and the Arctic region and Greenland in the north had the highest positive anomalies of +2 to +3, partly over +3 K. September brought high maximum temperatures of more than 30 °C for instance in Austria, Poland and Moldavia. **In October 2012** it was mostly colder than normal or close to normal on the eastern North Atlantic, the British Isles, the western Iberian Peninsula, Norway and Sweden except the farthest north, Netherlands, Denmark, Germany, Poland and much of the Baltic Sea area. Ireland and northern UK as well as large parts of Norway and western Sweden were coldest with anomalies up to -3 K. UK reported the provisionally coldest October since 2003. It was on the other hand warmer than normal in the south, southeast, east, north and northwest with the highest positive anomalies above 4 K in the Black Sea area and above 3 K from the Aegean Sea northeastwards to southern Russia, southern Ukraine and the Caucasus region as well as in the Barents Sea and northern Greenland. **November 2012** was warmer than normal in the Arctic region and on most of the continent except the westernmost parts of the British Isles, France and the Iberian Peninsula. It was colder than normal on the Atlantic. The positive anomalies were higher than +4 K in the Arctic region and at many stations above +3 K in Slovakia.

Precipitation:

Autumn 2012 brought more precipitation than normal to the southeastern British Isles as well as to the southern Iberian Peninsula, the central and partly the eastern Mediterranean Sea area and to northern Europe as well as the Middle East. This surplus was caused to a good part by extremely wet days, resp. extreme precipitation events as the "map of anomalies of the precipitation fraction due to extremely wet days" shows. There is a special report on the extreme events in the Mediterranean Sea area for autumn 2012 available (see the list of links below). This coincides with the distribution of the mean sea level air pressure that shows low pressure centered over the Norwegian Sea reaching far southward over central Europe and only weak high pressure over the central North Atlantic and over southeastern Europe. Thus the dipole of the Icelandic low and the Azores high is poorly developed and nearly the whole European area had less than normal pressure. Relatively dry conditions occurred mainly in southern Russia, the Carpathian region and on the Balkan Peninsula and western Turkey.

In September 2012 much of central, eastern and southeastern Europe and the Middle East were drier than normal. The Mediterranean Sea area especially in its central part as well as the southern Iberian Peninsula and northern and northwestern Europe partly received more precipitation than normal. This surplus was often caused by extremely heavy precipitation (see the section on Special Events). Especially in the Mediterranean Sea area some places received heavy to extremely heavy precipitation for 2 or 3 consecutive days so that large precipitation totals amounted within relative short time. **October 2012** was wetter than normal on most of the western, southern, northern and eastern to northeastern continent, except the eastern Black Sea, the Caucasus region and the Caspian Sea region, the Atlantic region, parts of the Mediterranean Sea region and central Europe (mostly Germany), which were drier. Much more precipitation than normal fell in western France, on the southern Iberian Peninsula, at the Adriatic coast, in the northern Baltic Sea region and in the eastern parts of European Russia as well as in southwestern Greenland. Sweden reported that "in the northernmost part of the Swedish east coast the month of October was the rainiest on record with some local flooding". Especially in the Mediterranean Sea region several phases with extremely heavy precipitation occurred in connection with low pressure systems. Heavy to very heavy precipitation also occurred in the north. **November 2012** was wetter than normal on the southern Iberian Peninsula, the Middle East, northern Italy and the Alps, northern parts of European Russia and Finland as well as southern Scandinavia and the southern British Isles. Drier than normal on the Balkan Peninsula around the Black Sea and in southern Russia as well as on the northwestern European continent and parts of Scandinavia. Many extremes of

precipitation totals occurred in several episodes on different time scales from high several-day totals to extremely high daily totals especially in the Mediterranean Sea area and on Madeira but also for instance in England, where one week in November was the wettest since 50 years. Observations and links to further information may be found in the Event Calendar at the end of this report. It is remarkable in this context that the vertically integrated water vapour content this month was clearly higher than normal over the area which is closely correlated with the positive temperature anomalies (though the reference periods differ this statement can be made), see <http://www.dwd.de/rcc-cm> and the image on the front page. The anomalies of the precipitation fraction due to extremely wet days (R99pTOT) with up to more than 60 percent at many locations where the extremely heavy precipitation events happened show the extraordinary situation. Austria reported on 11 November 2012 125 mm in 24 hours at the station Loiblpass which is more than half of the month's normal (Note that this value is not included in the summaries table).

Sunshine Duration:

Autumn 2012 was sunnier than normal for the British Isles, partly the Iberian Peninsula, central, eastern and southeastern Europe, eastern Ukraine and southwestern Russia. For Poland the station Warszawa reported the highest seasonal total of 424.2 hours.

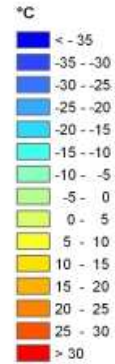
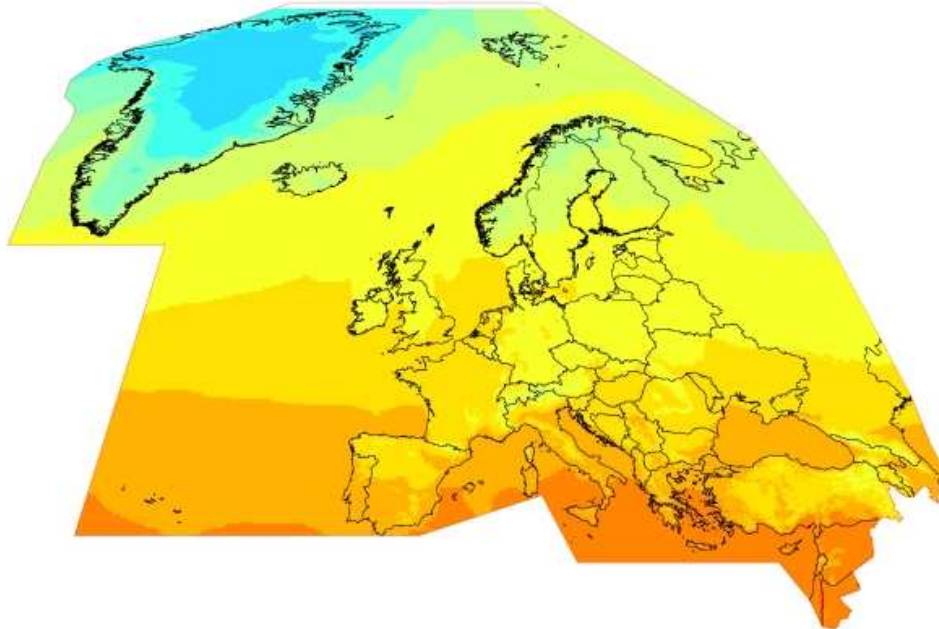
In **September 2012** it was sunnier than normal mostly in central, western, southeastern and southern Europe except the central Mediterranean Sea region. It was less sunny on the other hand in most of the north: northern Germany, Scandinavia except southern and central Sweden and northern Russia. The sunniest country was Poland with positive anomalies up to more than 150 percent of the normal.

October 2012 was sunnier than normal on the British Isles, the southern Iberian Peninsula, central and eastern central Europe, partly southern and western Scandinavia and on the Italian and Balkan Peninsulas. Elsewhere it was close to normal or dull. Lesser sunshine than normal was especially observed in northwestern France and southeastern UK, partly in Portugal, in northeastern Russia as well as in Finland, the eastern Baltic Sea region and Belarus. **November 2012** was sunnier than normal on the northern part of the Balkan Peninsula and north of the Black Sea (partly more than 150 percent of the normal) as well as over the Alps, parts of Germany and the Netherlands, the westernmost parts of the continent and southeastern and northern UK and Ireland and as well parts of western Scandinavia. It was mostly dull elsewhere. Below 50 percent of the normal were registered in the east.

Circulation: Both, NAO and AO index were negative with seasonal means of -0.99 resp. -1.16 in **autumn 2012**. NAO was a most active mode in October 2012 together with the East Atlantic/West Russia mode while in **November 2012** it had weaker influence and other modes (Scandinavian and East Atlantic Pattern) were as well active. The 500 hPa anomalies were negative on the eastern Atlantic and positive over southern Russia. (See ftp://ftp.cpc.ncep.noaa.gov/wd52dg/data/indices/tele_index.nh for all indices.)

Temperature:

Mittlere Temperatur Herbst 2012
Mean Temperature Autumn 2012



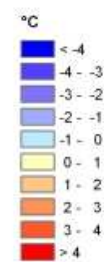
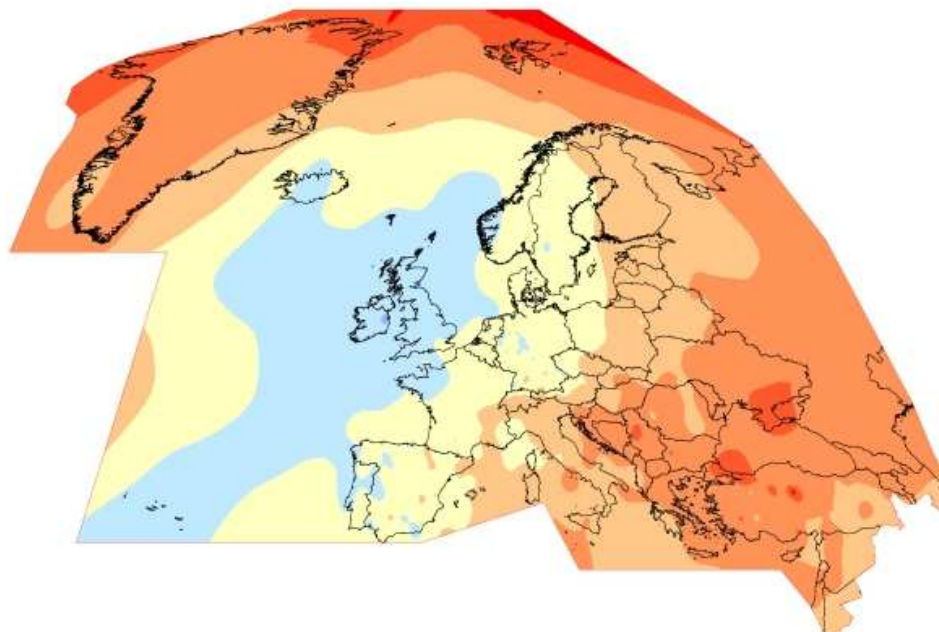
Datenbasis / Data basis:

CLIMAT und Schiffsmeldungen
CLIMAT and ship observations

Stand / last update :

10.12.2012

Temperaturabweichung Herbst 2012 vom Normalwert 1961-1990
Temperature deviation Autumn 2012 (reference period 1961-1990)

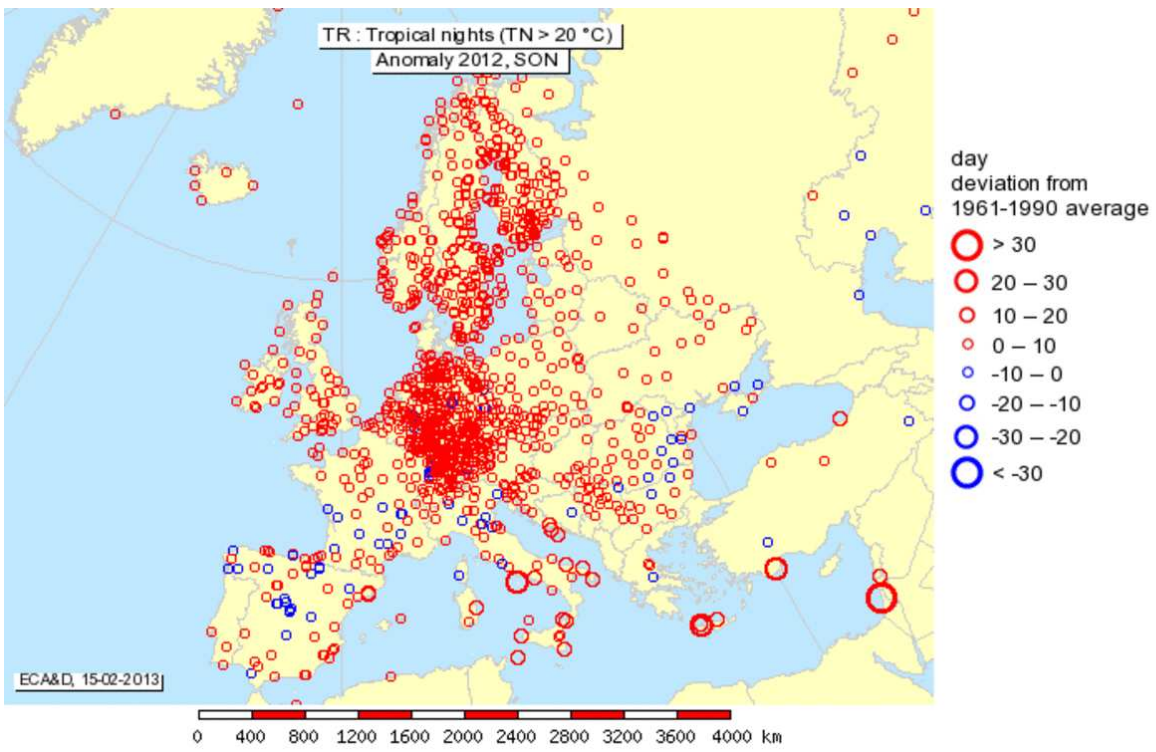


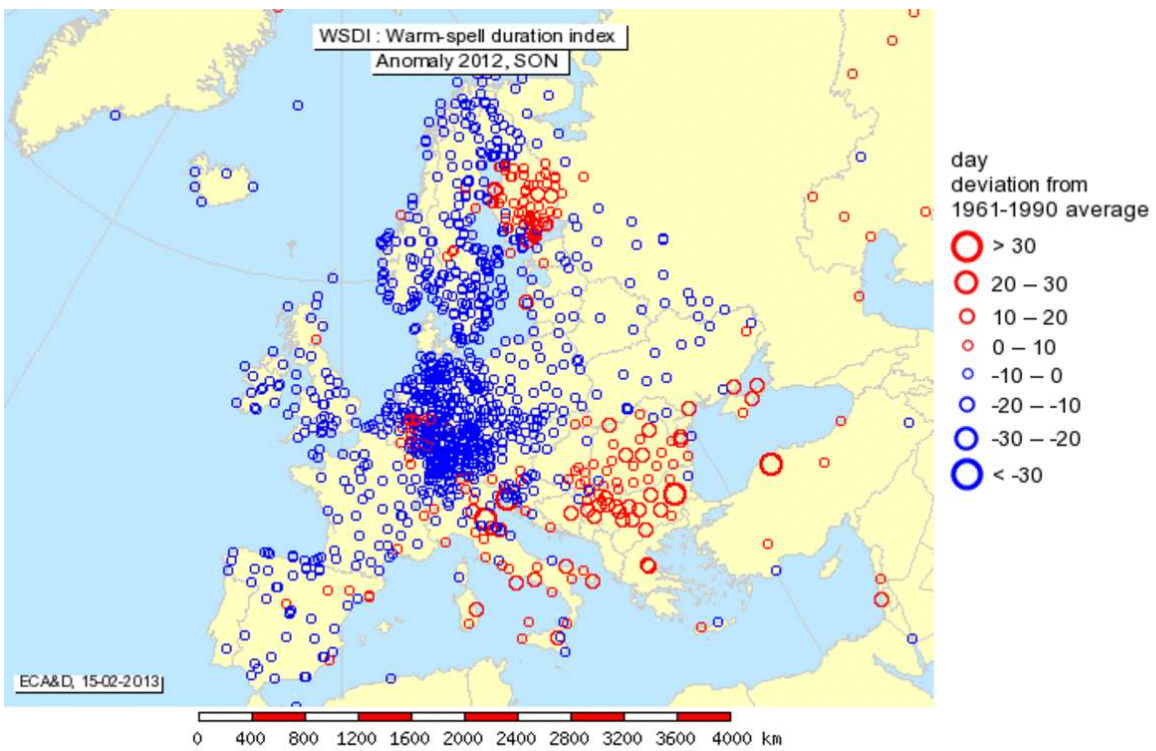
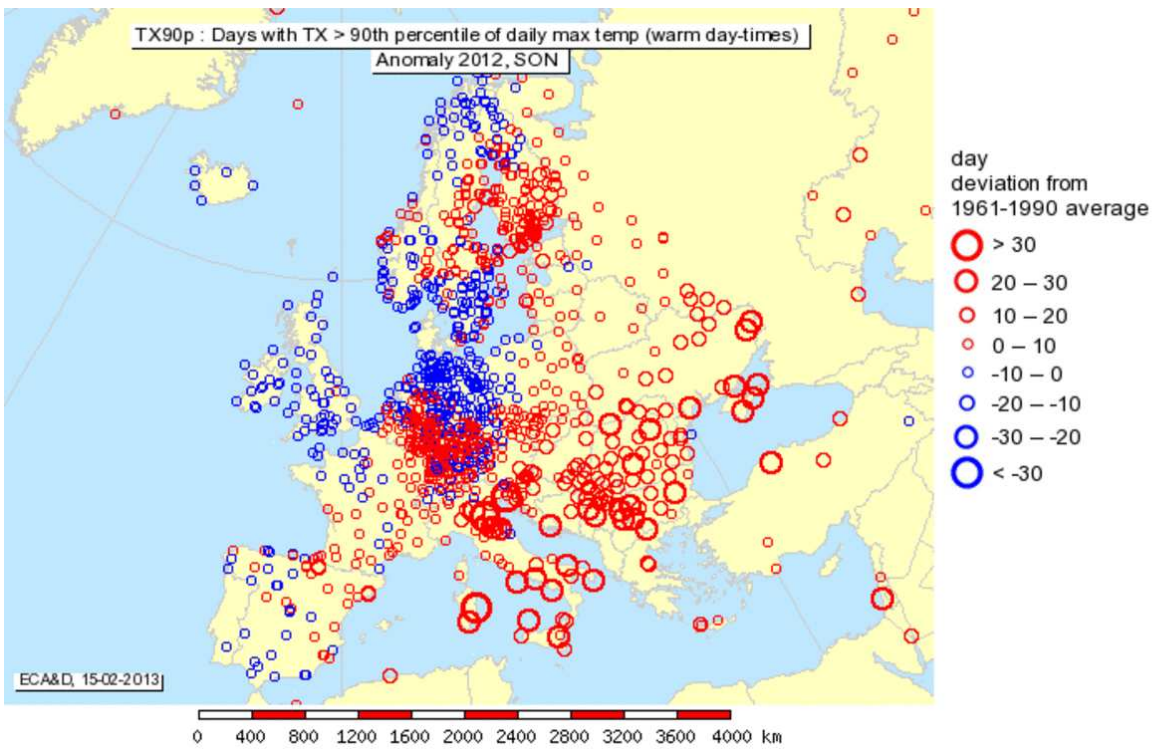
Datenbasis / Data basis:

CLIMAT und Schiffsmeldungen
CLIMAT and ship observations

Stand / last update :

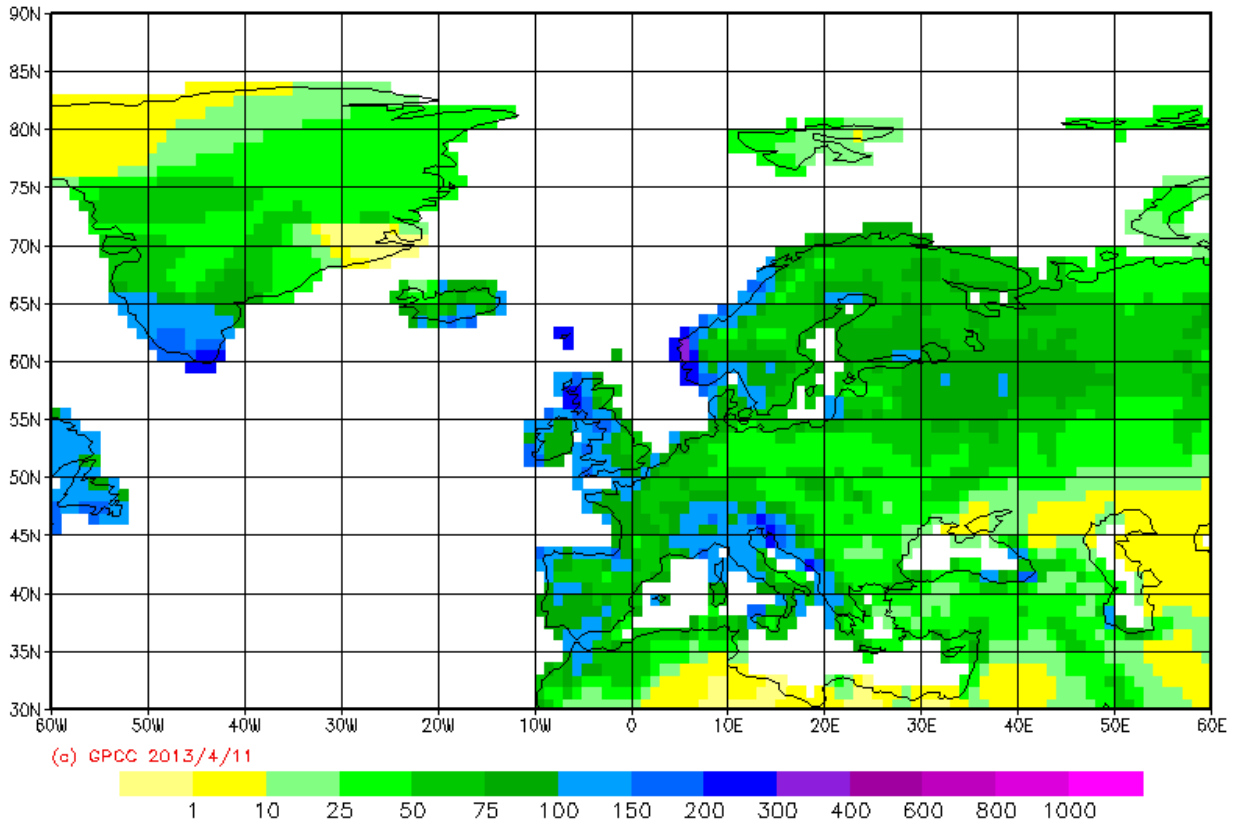
10.12.2012



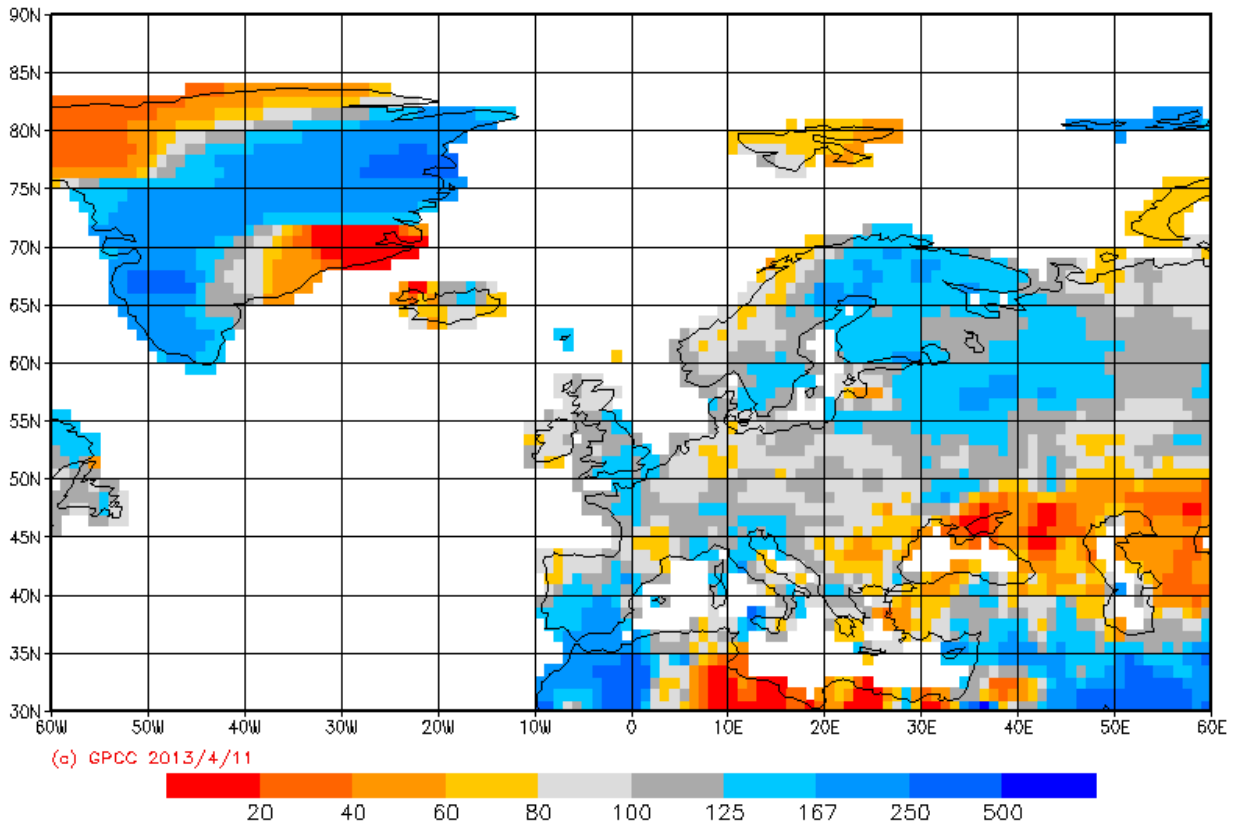


Precipitation:

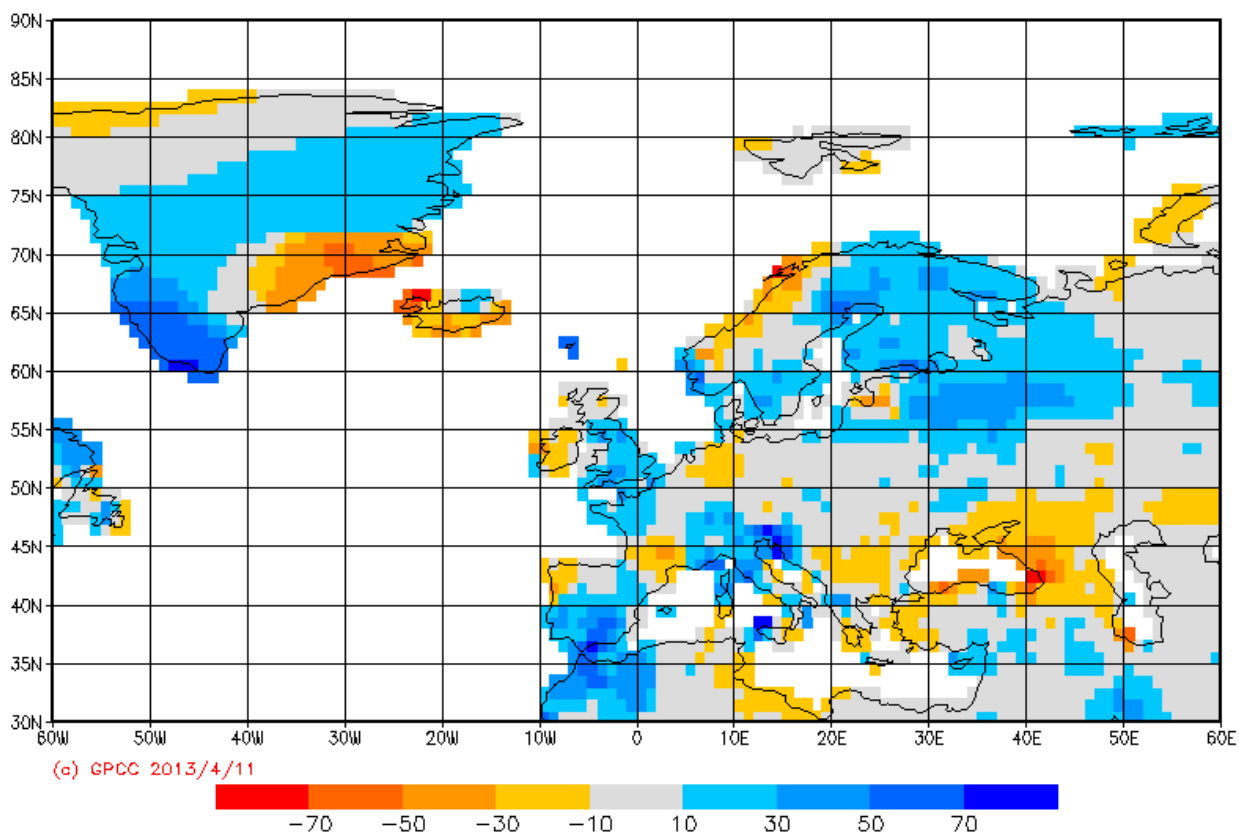
GPCC First Guess 1.0 degree
precipitation for Season (Sep,Oct,Nov) 2012 in mm/month

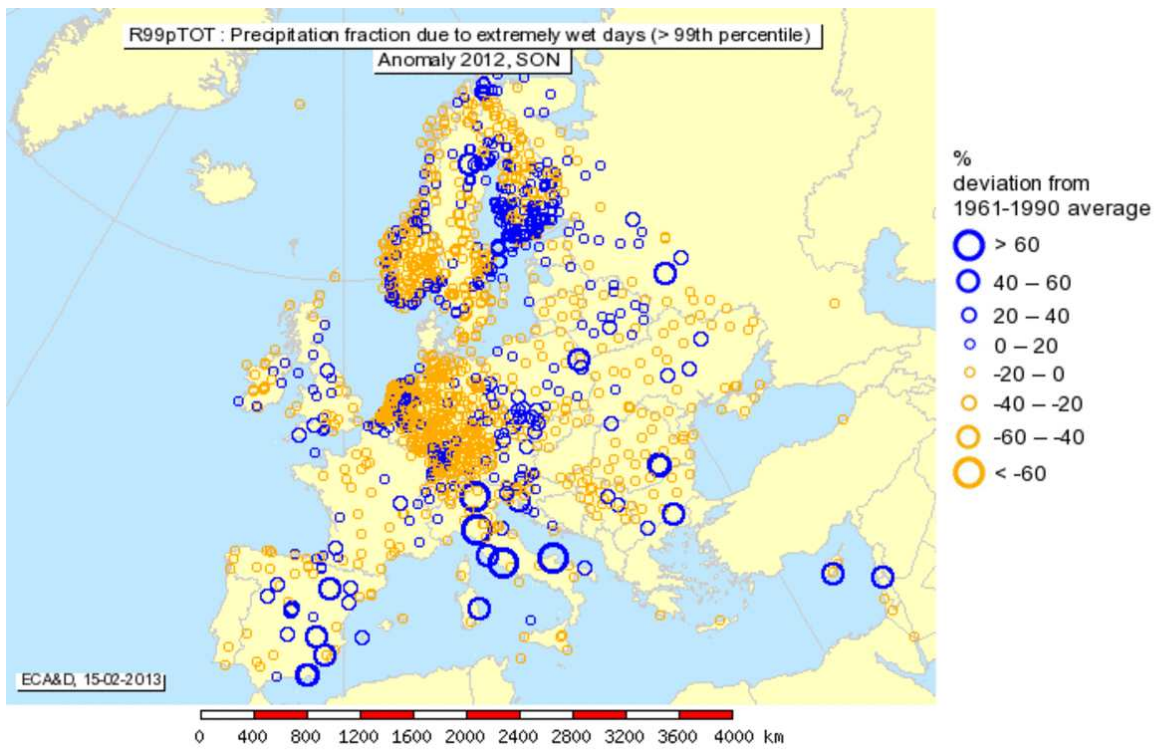


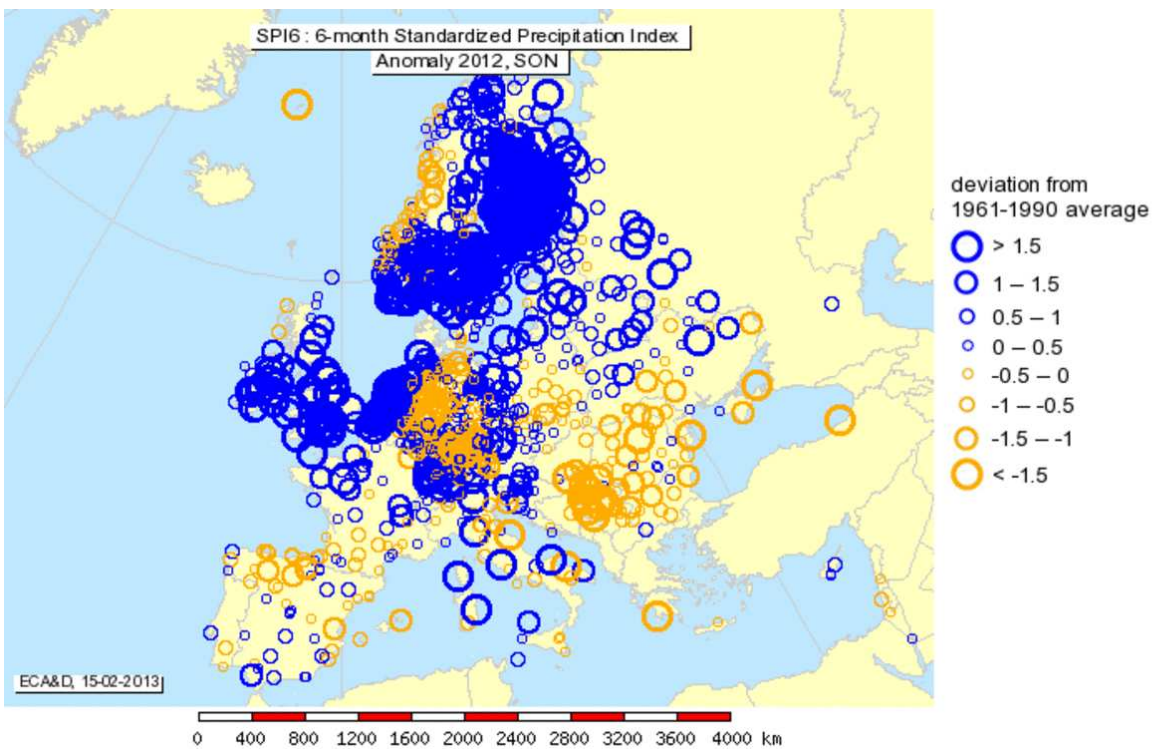
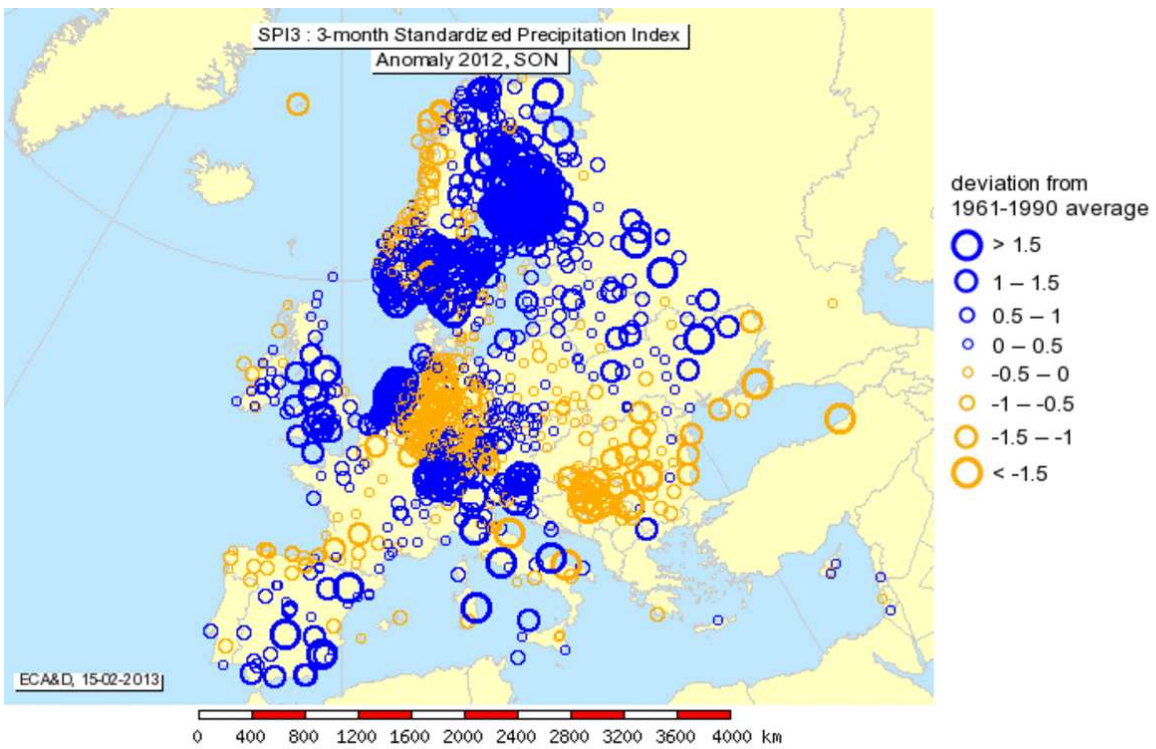
GPCP First Guess 1.0 degree
precipitation percentage of normals 1951/2000 for Season (Sep,Oct,Nov) 2012
(grid based)



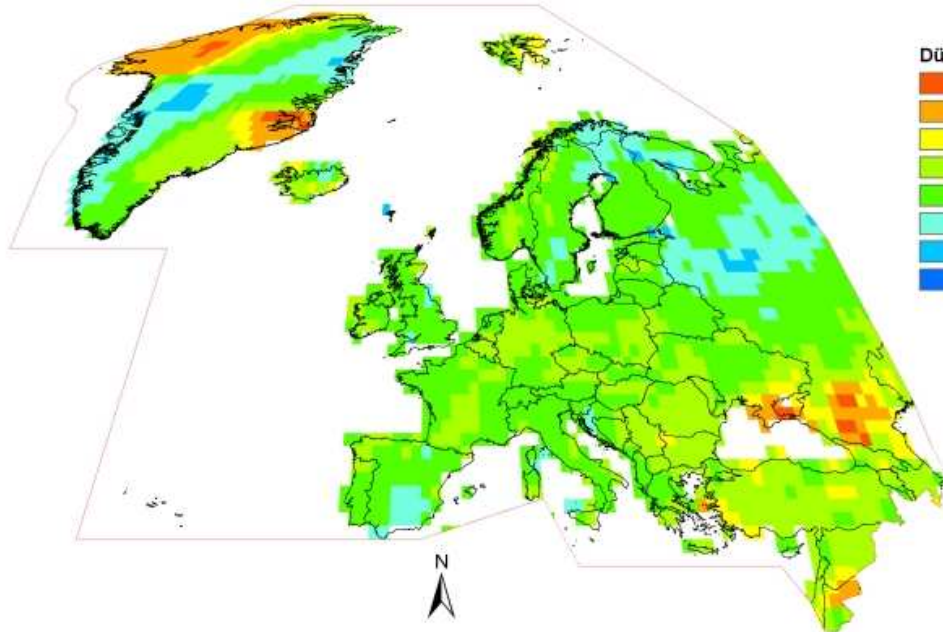
GPCC First Guess 1.0 degree
precipitation anomaly for Season (Sep,Oct,Nov) 2012 in mm/month
(deviation from normals 1951/2000) (grid based)







DWD-Standardisierter Niederschlags-Index Herbst 2012
 DWD Standardized Precipitation Index Autumn 2012



Dürreklassen/Drought classes

<-2	extrem trocken/extremely dry
-2 - -1,5	sehr trocken/severely dry
-1,5 - -1	mäßig trocken/moderately dry
-1 - 0	leicht trocken/slightly dry
0 - 1	leicht feucht/slightly wet
1 - 1,5	mäßig feucht/moderately wet
1,5 - 2	sehr feucht/very wet
>2	extrem feucht/extremely wet

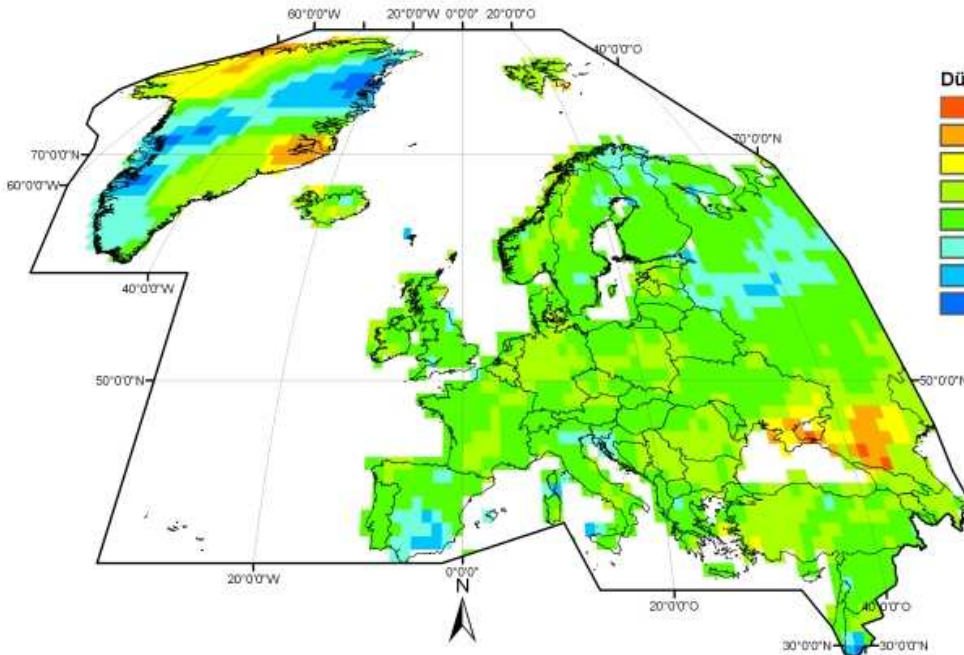
Datenbasis / Data basis:
 WZN/GPCC
 Landsurface Monitoring
 Product 1.0*

Projektion / Projection:
 Mollweide

Stand / last update :
 19.02.2013

DWD-Standardisierter Niederschlags-Index Herbst 2012
 (Abweichung vom Normalwert 1961-1990)

DWD Standardized Precipitation Index Autumn 2012
 (deviation from normals 1961-1990)



Dürreklassen/Drought classes

<-2	extrem trocken/extremely dry
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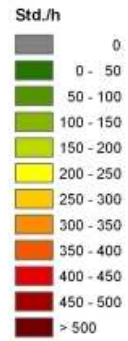
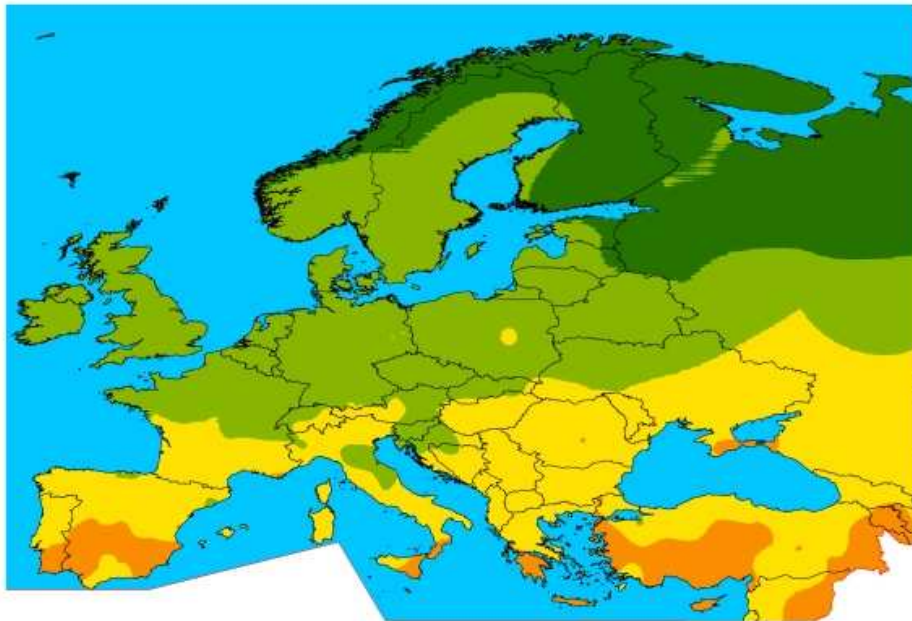
Datenbasis / Data basis:
 WZN/GPCC
 Landsurface Monitoring
 Product 1.0*

Projektion / Projection:
 Mollweide

Stand / last update :
 19.02.2013

Sunshine Duration and Cloud Cover:

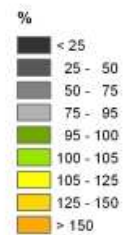
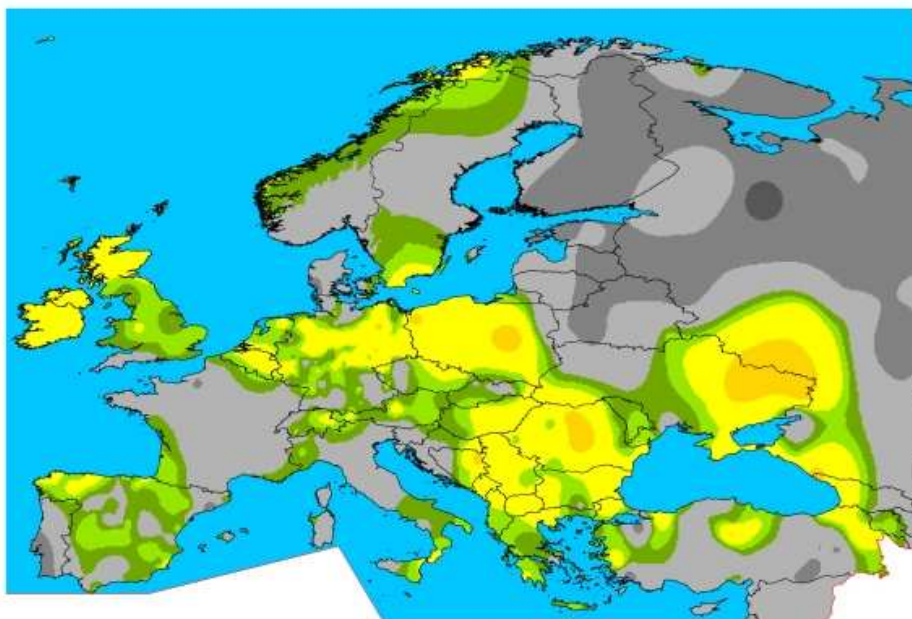
Sonnenscheindauer Herbst 2012
Sunshine duration Autumn 2012



Datenbasis/Data basis:
CLIMAT

Stand / last update :
14.12.2012

Sonnenscheindauer Herbst 2012 in % vom Normalwert 1961-1990
Sunshine duration Autumn 2012 in % of the 1961-1990 normal

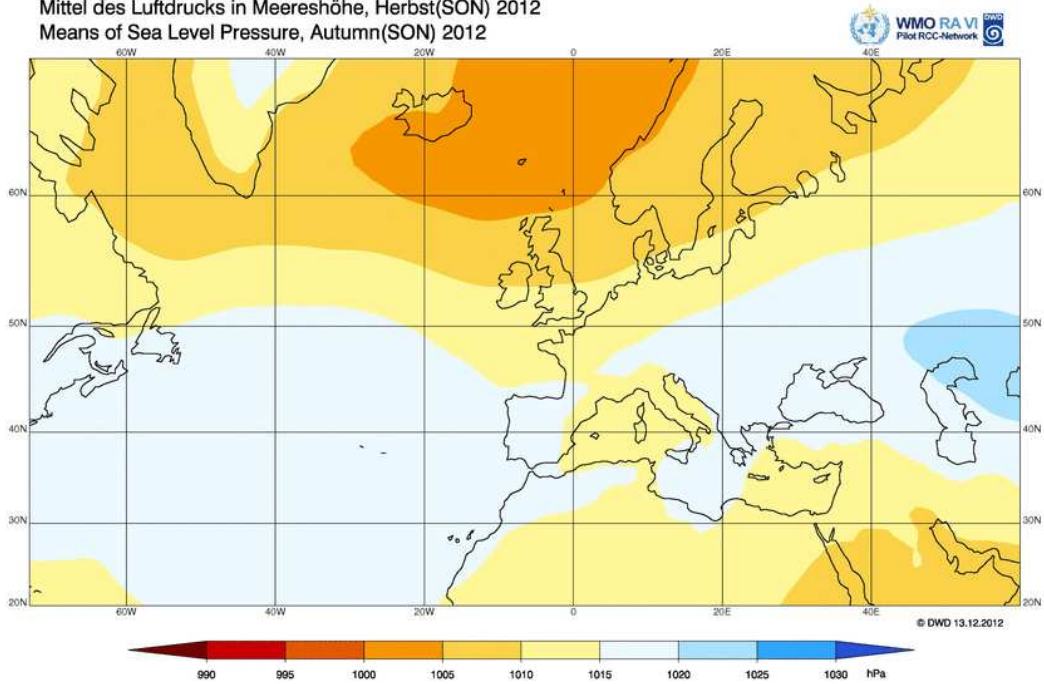


Datenbasis/Data basis:
CLIMAT

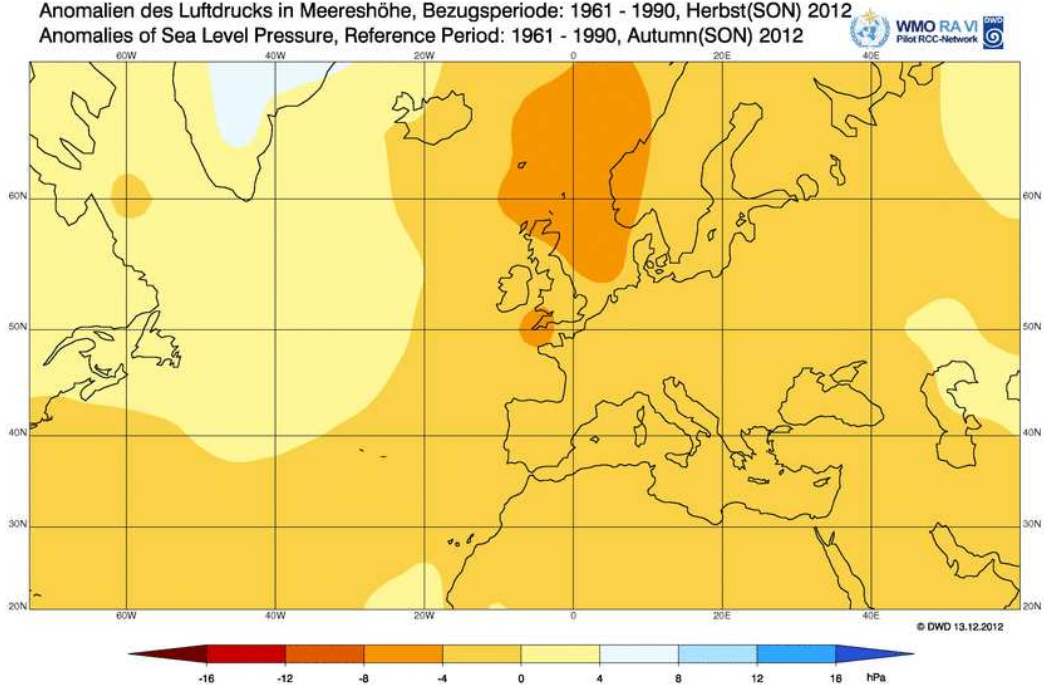
Stand / last update :
14.12.2012

Air Pressure (surface):

Mittel des Luftdrucks in Meereshöhe, Herbst(SON) 2012
Means of Sea Level Pressure, Autumn(SON) 2012



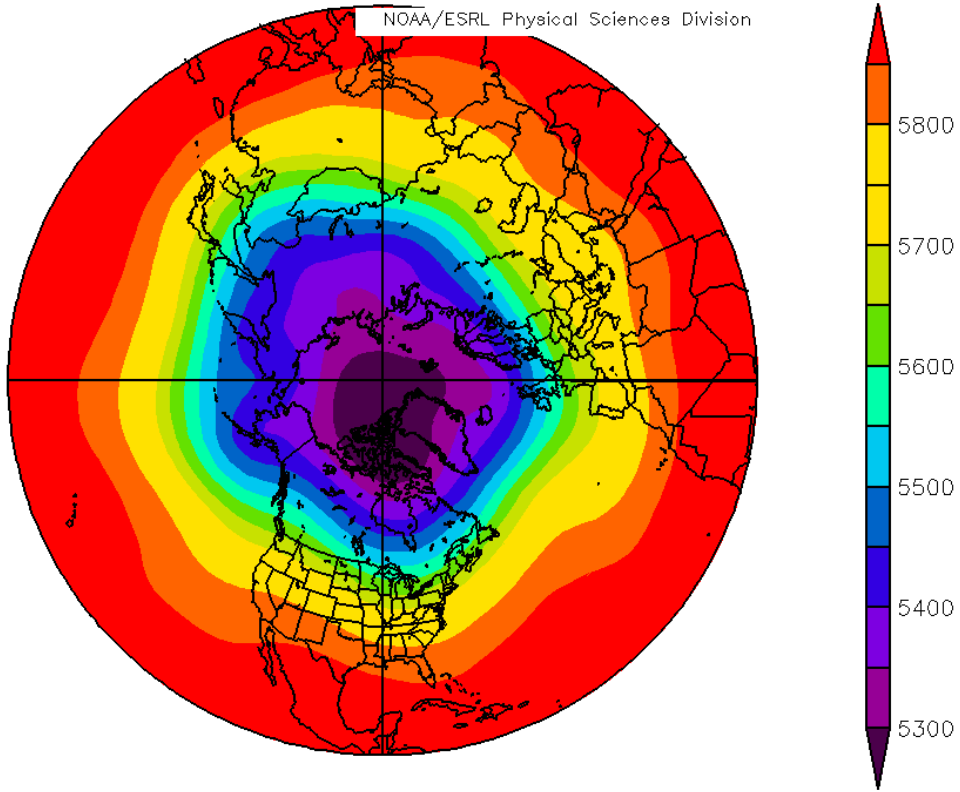
Anomalien des Luftdrucks in Meereshöhe, Bezugsperiode: 1961 - 1990, Herbst(SON) 2012
Anomalies of Sea Level Pressure, Reference Period: 1961 - 1990, Autumn(SON) 2012



Geopotential Height (500 hPa):

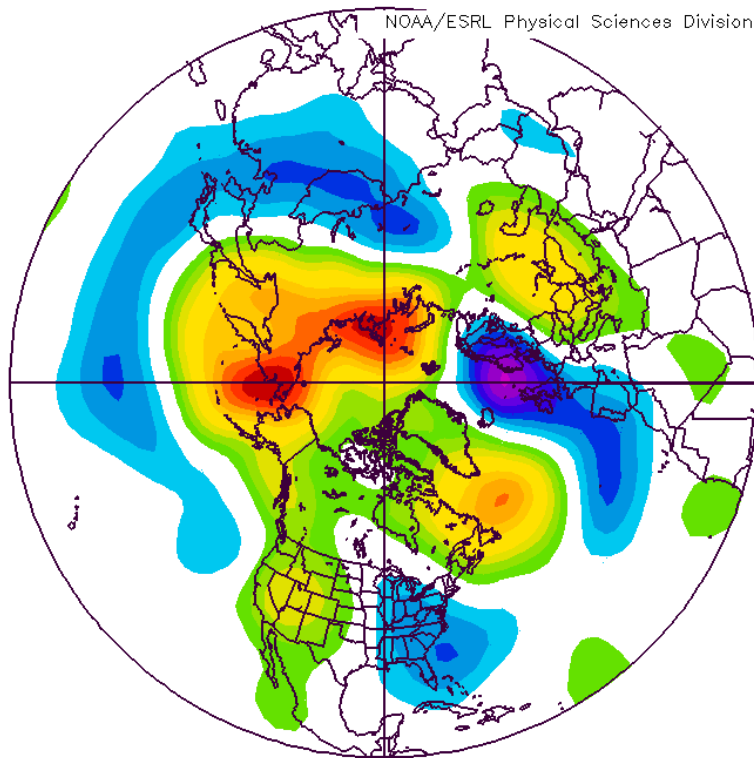
NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Composite Mean

NOAA/ESRL Physical Sciences Division



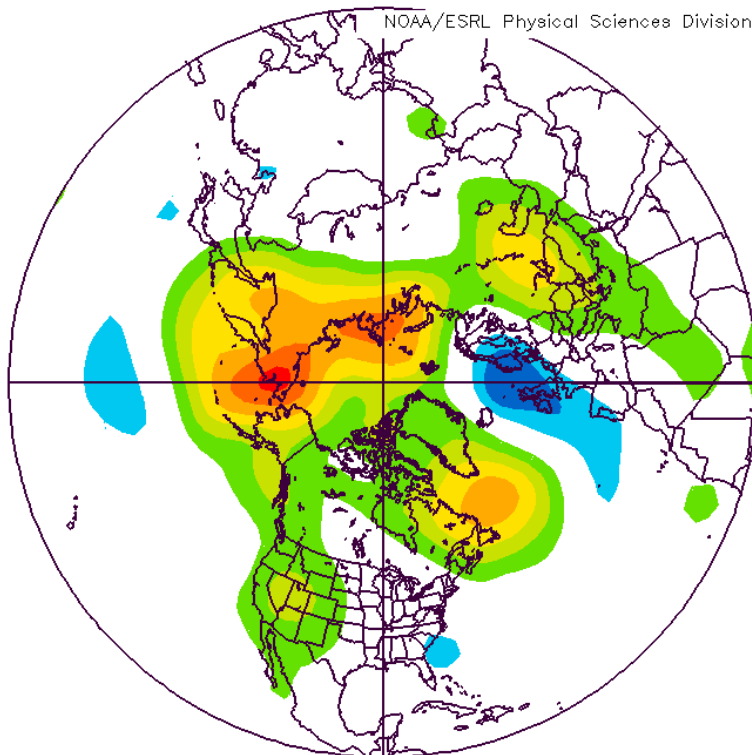
Sep to Nov: 2012

NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Composite Anomaly 1981–2010 climo



Sep to Nov: 2012

NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Composite Anomaly 1981–2010 climo



Sep to Nov: 2012 to 2012 minus 1961 to 1990

Extremes Values:

Data source: The RCC-CD-node: <http://www.ecad.eu>

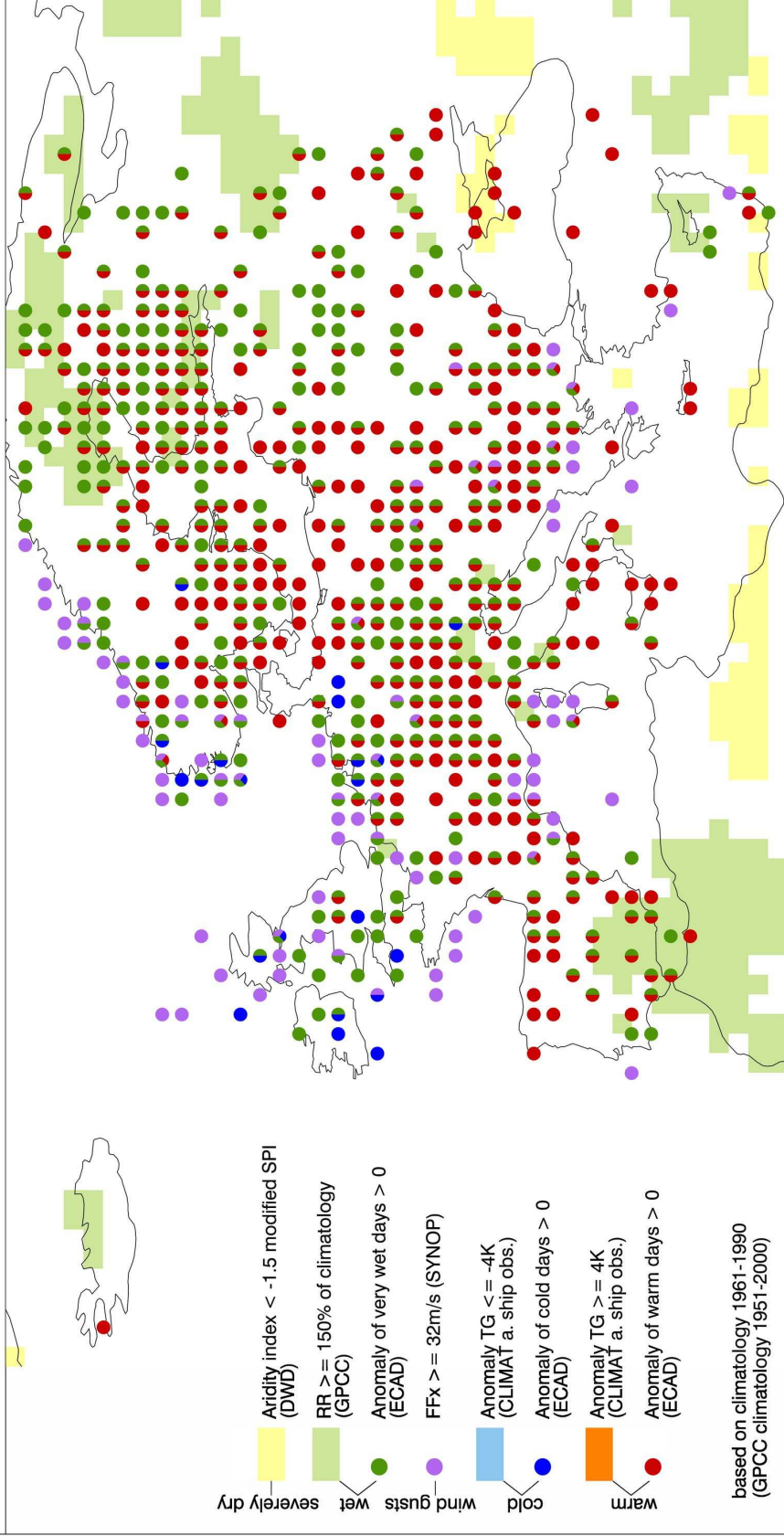
RX1d: highest 24 hours total (in mm), RX5d: highest 120 hours total (in mm), RR10: highest number of days with heavy precipitation (>10 mm/d), RR20: highest number of days with very heavy precipitation (>20 mm/d), TN: lowest mean minimum temperature (° C), TNN: lowest absolute minimum temperature (° C), TX: highest mean maximum temperature (° C), TXX: highest absolute maximum temperature (° C)

Country	RX1d [mm]	RX5d [mm]	RR10 [days]	RR20 [days]	TN [°C]	TNN [°C]	TX [°C]	TXX [°C]
Austria	55.0	77.6	10	7	-3.4	-16.9	15.6	31.1
Bosnia and Herzegovina	-	-	-	-	9.0	-1.4	19.7	34.9
Belgium	97.0	105.4	13	4	5.4	-4.4	15.2	30.5
Bulgaria	74.0	88.2	5	3	6.7	-4.5	23.8	35.5
Belarus	38.0	53.0	10	4	5.7	-3.5	13.0	28.0
Switzerland	93.0	185.0	19	14	-1.1	-16.8	17.7	29.0
Cyprus	47.0	57.4	4	1	-	-	-	-
Czech Republic	44.0	76.9	10	4	-	-9.2	-	32.5
Germany	61.0	145.0	23	10	-3.4	-17.5	16.1	32.2
Denmark	-	-	-	-	7.5	-3.9	12.5	25.4
Algeria	-	-	-	-	-	2.7	33.2	42.6
Estonia	33.0	52.0	9	3	4.5	-8.1	11.4	24.6
Canar. Island	-	-	-	-	-	-	26.6	33.4
Spain	129.0	144.0	22	12	4.5	-6.8	25.3	38.2
Finland	52.9	105.5	14	4	-3.7	-27.6	10.7	21.5
France	126.0	213.4	20	11	4.2	-9.8	22.8	34.2
United Kingdom	64.0	102.0	18	8	4.2	-5.8	14.9	28.5
Greenland	-	-	-	-	-12.4	-28.3	3.7	12.1
Greece	36.0	64.4	7	4	-	1.9	26.2	36.6
Croatia	221.0	224.1	22	15	4.6	-8.3	21.9	32.2
Hungary	26.0	38.5	7	3	7.5	-2.4	19.0	33.7
Ireland	55.0	95.4	14	3	5.7	-4.3	13.2	22.5
Israel	59.0	94.3	7	2	-	9.1	34.2	41.0
Iceland	-	-	-	-	1.2	-7.6	6.6	17.6
Italy	168.0	214.4	18	12	-4.5	-16.9	27.5	37.6
Kyrgyzstan	-	-	-	-	5.6	-13.5	18.5	34.4
Kazakhstan	-	-	-	-	-0.2	-25.5	20.6	36.2
Liechtenstein	-	-	-	-	7.9	-4.3	-	-
Lithuania	24.0	59.0	11	1	5.4	-4.5	12.4	25.5
Luxembourg	24.4	46.4	8	2	6.3	-3.5	13.4	28.6
Latvia	28.5	65.3	10	2	4.6	-6.3	11.7	25.2
Moldova	24.0	28.9	4	2	9.0	-2.8	17.1	30.0
Netherlands	50.9	110.5	17	6	5.3	-6.4	14.7	29.9
Norway	98.0	204.4	46	30	-4.5	-29.2	11.1	23.0
Poland	39.0	61.1	10	5	4.7	-10.4	15.8	31.2
Portugal	62.0	119.1	6	3	-	3.6	23.2	35.7
Romania	47.0	59.2	7	3	0.0	-10.9	21.1	34.6
Serbia	33.0	51.2	7	3	4.2	-8.4	22.0	36.4
Russian Federation	200.0	212.6	15	3	-4.8	-34.1	18.3	33.1
Sweden	57.0	89.4	19	6	-4.7	-32.3	12.5	26.0
Slovenia	182.6	296.8	22	15	-0.1	-13.5	19.0	32.0
Slovakia	39.5	79.1	8	4	3.8	-6.1	17.5	33.1
Tajikistan	-	-	-	-	7.4	-5.6	24.7	37.0
Turkmenistan	-	-	-	-	-	-	25.5	37.6
Turkey	18.0	43.2	8	0	6.1	-3.4	27.3	36.9
Ukraine	67.0	67.0	7	5	5.5	-5.9	20.5	33.1
Uzbekistan	-	-	-	-	4.7	-10.0	25.4	38.6

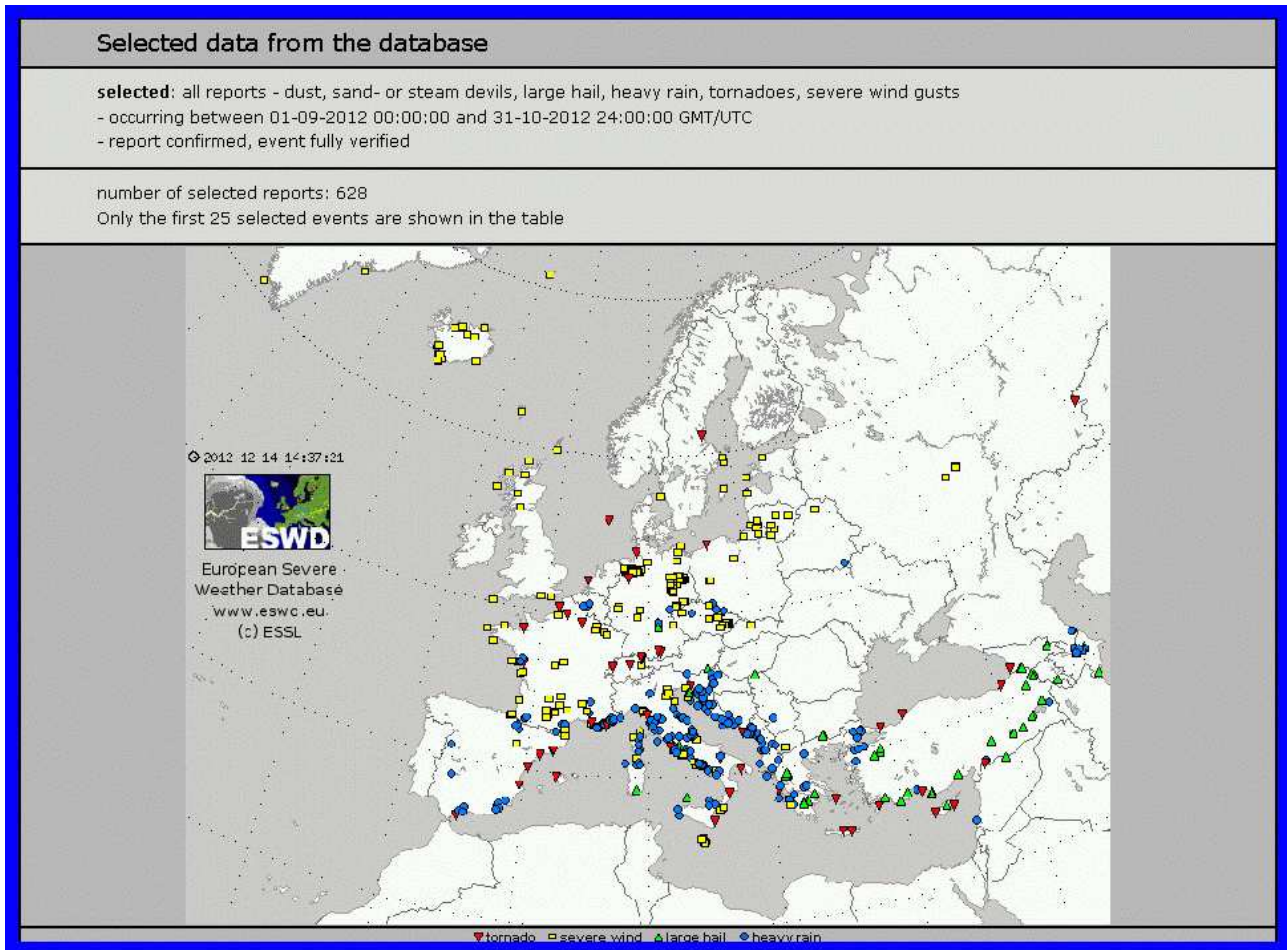
Climate Extremes and Severe Weather Events:

Map of Climate Extremes and Events of the Season:

Event map autumn 2012 / Ereigniskarte Herbst 2012



Map of reported Severe Weather Events of the Season:



Map of reported Severe Weather Events of the Season, Source: <http://essl.org/cgi-bin/eswd/eswd.cgi>

Web-available seasonal summaries in RA VI:

[ZAMG Austria 29.11.2012: Erste Bilanz Herbst 2012](#)

[MeteoSchweiz 2012: Klimabulletin Herbst 2012. Zürich](#)

[Meit Eirann: THE WEATHER OF AUTUMN 2012 - SEPTEMBER, OCTOBER AND NOVEMBER SUMMARY](#)

[IMGW Poland: Monthly Climate Monitoring Bulletin, Autumn 2012](#)

[EMHI Estonia: 5 December 2012: Autumn 2012](#)

[Meteo France 3 December 2012: Bilan de l'automne 2012](#)

[KNMI Netherlands 3 december 2012: Herfst was droog en zonnig](#)

[Norge: Lufttemperatur og nedbør for høstsesongen 2012](#)

[Belarus: Climate conditions autumn 2012](#)

[DMI Denmark: Weather in Denmark - autumn 2012](#)

[KMI Belgium: Herfst 2012](#)

[Federacija Bosne i Hercegovine: Jesen 2012](#)

[Moldavia: Caracterizarea conditiilor meteorologice si agrometeorologice din toamna anului 2012](#)

[SMHI Sweden: Hösten 2012 - Varm med många nya regnrekord](#)

[UK MetOffice: Autumn 2012](#)

References:

(Links to Analyses of Extreme Climate Events or special papers of interest)

[Bissolli,P., Nitsche,H., Becker,A. \(17 December 2012\): Numerous episodes of heavy rainfall in southern Europe in autumn 2012](#)