



## **Cold spell in Europe in late winter 2011/2012 (7 February 2012)**

After unusually mild weather in December 2011 and early January 2012 almost all over Europe, the weather situation changed abruptly in the middle of January. An incursion of cold polar air, coming from northern Russia at the south flank of an extensive high pressure area brought extremely low temperatures over large parts of Europe and also some considerable snowfall especially over various parts of the continent.

This Siberian high pressure system is preventing milder temperatures and maritime storms from moving from the Atlantic Ocean eastwards over Europe. This high pressure area was very stable causing a continuous flow of cold air to Europe over many days. This “blocking system” is extremely large in its extent but it is not an unusual phenomenon in the Northern hemisphere winter.

A similar high pressure “blocking” system was also responsible for the more significant cold winter of 2009/2010, when cold conditions started in mid December and continued over most of January and February period.

In the last few days of January and at the beginning of February, further extremely cold continental air from Russia arrived and brought ongoing frost to eastern, southeastern, central and large parts of western Europe. Minimum temperatures in Moscow went down to -25°C until the beginning of February.

Some east European countries (Latvia, Belarus, northeastern Poland, Ukraine) experienced minimum temperatures of around -30°C, northern Russia down to -37°C. In eastern Germany, minimum temperatures below -20°C were measured in many places, in western central Europe around -10°C to -15°C or below (e. g. Luxembourg -13°C on 3 February, Strasbourg in France at the Rhine river -15°C on 5 February, Basel in Switzerland -17°C on 6 February).

However, all these minimum temperatures were not new records. The long duration of the cold period, its relatively late onset and the extent of the cold area are noteworthy but not exceptional. The continental cold air extended even over the Balkan peninsula; slight ongoing frost was recorded even in northern Greece.

The cold air coming from the north was fed with a strong moisture flux from the central Mediterranean Sea. This caused heavy snowfall over parts of south eastern Europe such as the Balkans, Romania, Bulgaria, Italy, and Algeria and other countries in Northern Africa.

In contrast, mild air moved over the North Atlantic northwards over Iceland up to the Arctic region. The temperature in Svalbard, far north in the Arctic, reached repeatedly up to 5°C in recent days, more than in Milano (Italy) or in Istanbul (Turkey). Much of North America has also been unusually warm.

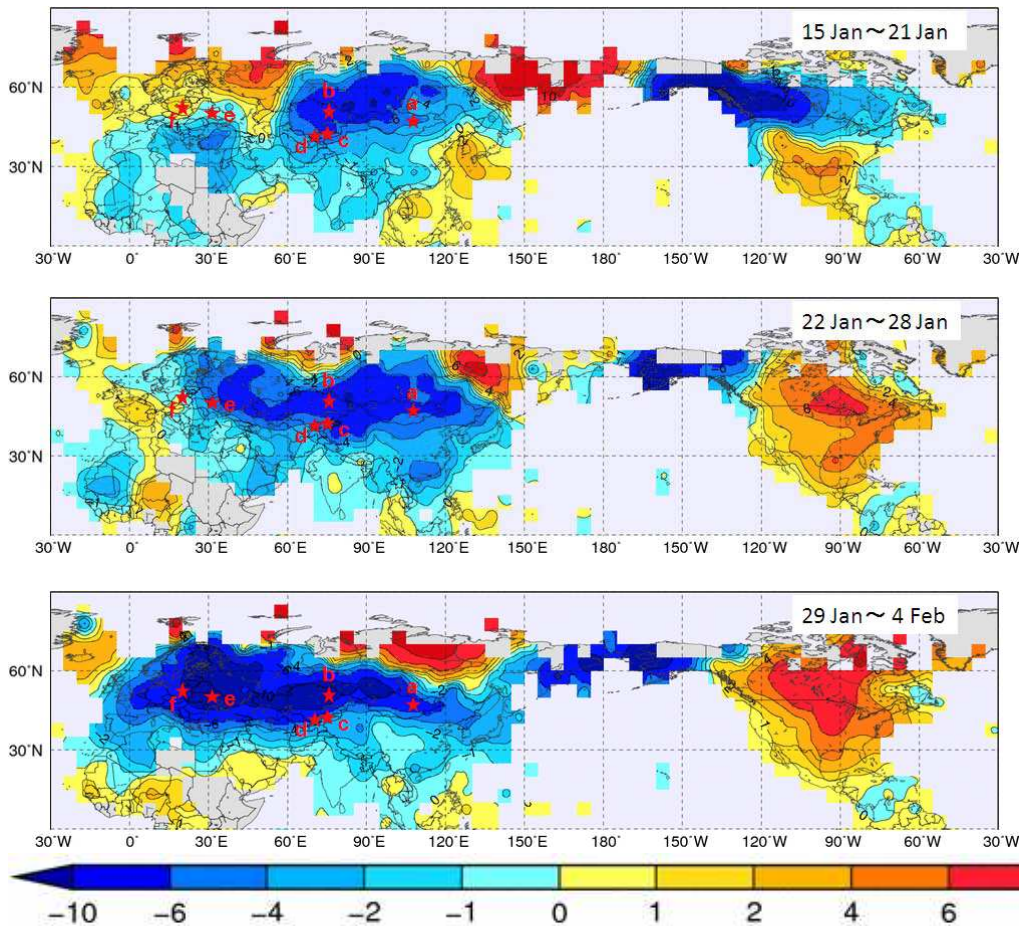
Part of the explanation is the the so-called Arctic Oscillation which is the difference in pressure between Polar areas and mid-latitude areas (where most of the population in Europe lives). At the moment there is a negative Arctic Oscillation, which favors cold conditions in Europe and relatively warmer conditions in the Arctic.

Similar cold spells with similar weather conditions occurred several times during the past decades. Similarly low temperatures in central Europe and even far higher snow depths were recorded as recently as February 2010.

Temperatures have been also been extremely low from the northern part of East Asia to Central Asia (in and around Mongolia and Kazakhstan) since mid-January. The influence of cold air has extended to Central to Western Europe as well as to all over Central Asia, such as Uzbekistan and Tajikistan, since the beginning of February.

This update is based on the information provided by WMO Member states in the region and the WMO Regional Climate Centres in Germany for Europe and Tokyo and Beijing for Asia

### Tokyo Climate Center, Japan Meteorological Agency



**Figure 1 Weekly temperature anomalies in the Northern Hemisphere from 15 January 2012 (Unit: °C) (Based on SYNOP reports)**

Source: [http://ds.data.jma.go.jp/tcc/tcc/news/Cold\\_Wave\\_over\\_the\\_Eurasian\\_Continent.pdf](http://ds.data.jma.go.jp/tcc/tcc/news/Cold_Wave_over_the_Eurasian_Continent.pdf)