Exceptionally large amount of winter snow in Northern Hemisphere this year

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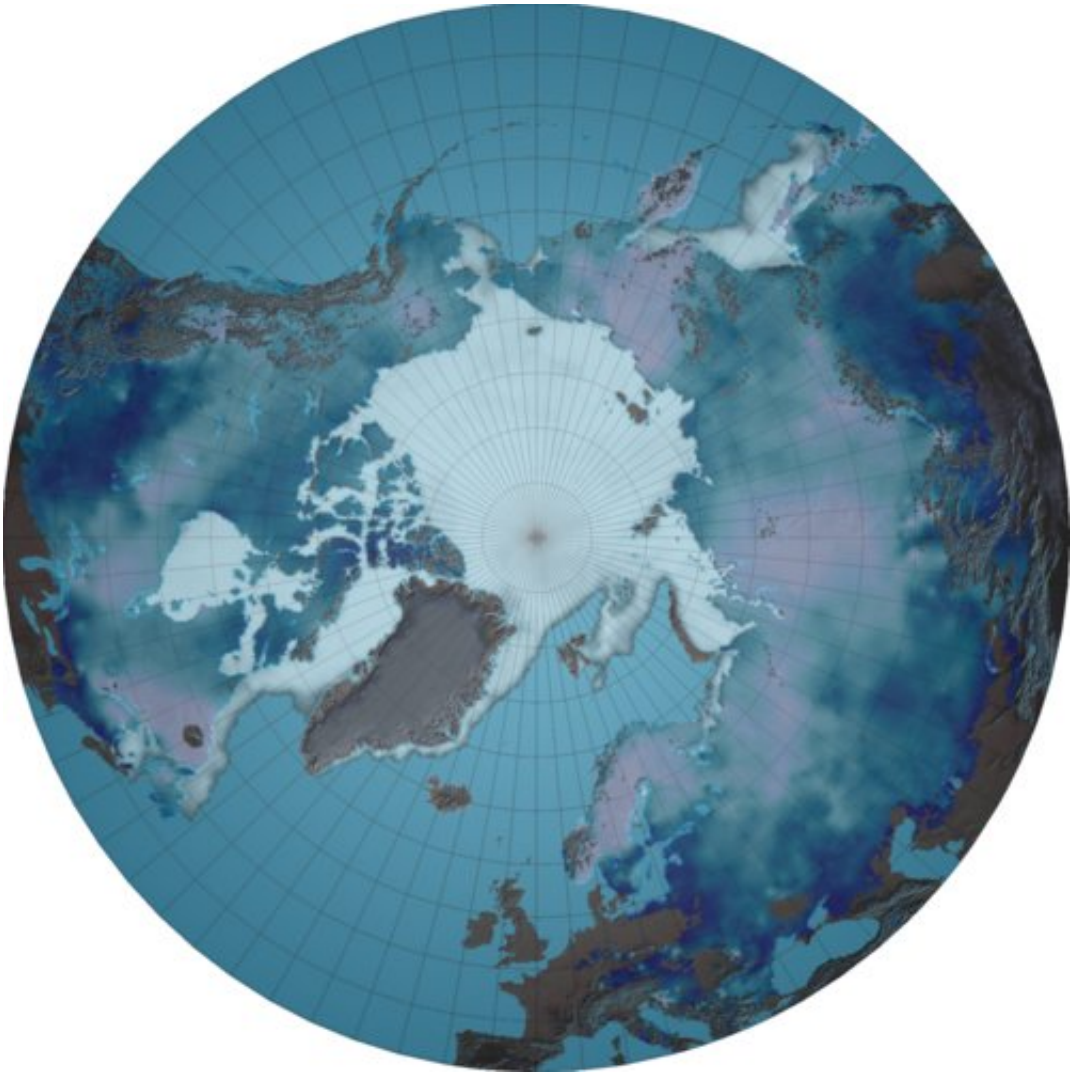

Over land the northern hemisphere Globsnow snow-water-equivalent SWE product and over sea the OSI-SAF sea-ice concentration product. Credit: Finnish Meteorological Institute

The new Arctic Now service developed by the Finnish Meteorological Institute shows with one picture the extent of the area in the Northern Hemisphere currently covered by ice and snow. This system shows the accurate state of the Arctic.

In the Northern Hemisphere, the maximum seasonal snow cover occurs in March. "This year has been a year with an exceptionally large amount of snow. The variation from one year to another has been somewhat great, and especially in the most recent years, the differences between winters have been very great," says Kari Luojus, senior research scientist at the Finnish Meteorological Institute.

The information has been gleaned from the Arctic Now service of the Finnish Meteorological Institute, which is unique even on a global scale. Comparable services only monitor the extent of the ice or snow.

"Here at the Finnish Meteorological Institute we have managed to combine data to form a single image. In this way we can get a better situational picture of the cryosphere—that is, the cold areas of the Northern Hemisphere," Research Professor Jouni Pulliainen observes.

In addition to the coverage, the picture includes the water value of the snow, which determines the water contained in the snow. This is important information for drafting hydrological forecasts on the flood situation and in monitoring the state of climate and environment in general.

Total amount of snow declines and snow starts to melt earlier

Information on the amount of snow is also sent to the Global Cryosphere Watch service of the World Meteorological Organisation (WMP), where

the information is combined with trends and statistics of past years. A lengthy series of observation times shows that the total amount of snow in the Northern Hemisphere has declined in the spring period and that the melting of the snow has started earlier in the same period. Examination over a longer period (1980-2017) shows that the total amount of snow in all winter periods has decreased on average.

The ice cover on the Arctic Ocean has grown thinner and the amount and expanse of perennial ice has decreased. Before 2000, the smallest expanse of sea ice varied between 6.2 and 7.9 million square kilometres. In the past 10 years, the expanse of ice has varied from 5.4 to 3.6 million square kilometres. Extreme weather phenomena including winters in which snowfall is quite heavy, and periods of little snow, will increase in the future.

The Arctic area is warming at twice the speed as the rest of the world, and the impact of climate change can already be seen in the Arctic regions. And the changes are affecting the rest of the Earth.

"What happens in the Arctic regions does not stay in the Arctic regions. It also affects a wider area. The exceptional strengthening of a high-pressure area in Siberia, which brought freezing temperatures to Finland in late February and early March, may be partly the result of atmospheric warming over the Arctic Ocean. When it is exceptionally cold somewhere in the world, it is often exceptionally warm somewhere else. This is what happened in the end of February-early March when temperatures in the North Pole were around zero degrees Celsius and it was exceptionally cold in Europe," explains Ari Laaksonen, Scientific Director at the Finnish Meteorological Institute.

The weather fluctuates from one year to another, and individual cold snaps in the Arctic area are not, as such, proof of the progression of climate change. "However, they are a reminder of how climate

uncertainty has increased and that we'll have to get use to variations in the weather as the climate change proceeds," Laaksonen observes.

Provided by Finnish Meteorological Institute

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