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A one stop website for sharing sea ice, ocean and ice sheet data over the Polar Regions

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The Polar Regions, including the Arctic and Antarctic, are changing rapidly. Our capabilities to remotely monitor the state of the polar regions are increasing greatly. Satellite and airborne technologies have been deployed and further improvements are underway. Meanwhile, various algorithms have been developed to retrieve important parameters to maximize the effectiveness of available remote sensing data. These technologies and algorithms promise to greatly increase our understanding of variations in sea ice, ocean and ice sheet. However, so much information is scattered out there. It is challenging to find exactly what you are looking for by just searching it through the network. Therefore, we try to establish a common platform to sharing some key parameters for the polar regions.

A group of scientists from Beijing Normal University and University at Albany developed a website as a "one-stop shop" for the current state of the polar regions. The website provides real-time (or near real-time) key parameters derived from a variety of operational satellites in an understandable, accessible and credible way. Three types of parameter, which are sea ice, ocean and ice sheet respectively, are shown and available to be downloaded in the website. Several individual parameters are contained in a specific type of parameter. The parameters of sea ice include sea ice concentration, sea ice thickness, melt pond, sea ice leads and sea ice drift. The ocean parameters contain sea surface temperature and sea surface wind. Ice sheet balance, ice velocity and some other parameters are classified into the type of ice sheet parameter.

Some parameters are well-calibrated and available to be obtained from other websites, such as sea ice concentration, sea ice thickness sea surface temperature. Since these parameters are retrieved from different sensors, such as SSMI, AMSR2 etc., data format, spatial resolution of the parameters are not unified. We collected and reprocessed these parameters to make them have a 6.25km resolution in spatial with the same projection (polar stereographic projection and equal area scalable earth projection) in NETCDF format. The information of original producer is provided in our website. In addition, we also try to improve or develop algorithms to retrieve some parameters, such as melt ponds, sea ice leads. The image and data provided by the website delivers information for decision-making communities and supports polar predictions.