

**Title:**

Satellite microwave remote sensing based classification of spring thaw timing for the Pan-Arctic basin and Alaska.

**Description:**

This data set provides the SSM/I derived spring thaw timing for the pan-Arctic basin and Alaska using a temporal change classification method. A detailed description of the dataset and biophysical significance of the freeze-thaw measurement is provided by McDonald et al. (2004) and Kimball et al. (2006). This work was funded by NASA Earth Science and NSF Office of Polar Programs.

**Projection:**

The region is defined in terms of nodes of the National Snow and Ice Data Center (NSIDC) north polar Equal-Area Scalable Earth (EASE) grid.

**Spatial Resolution:** 25km\*25km

**Number of Nodes:** 39926

**Temporal Extent:** 1988 to 2002

**Data Fields:**

ID: Index number of the grids  
Lat: Latitude of the center of each grid  
Lon: Longitude of the center of each grid  
Thaw(AM): Primary Julian day of thaw as derived from SSM/I AM overpass brightness temperature data  
Thaw(PM): Primary Julian day of thaw as derived from SSM/I PM overpass brightness temperature data  
LC: Dominant land cover classification of each grid cell as derived from the resampled MODIS 1km resolution IGBP global land cover classification, where:  
0 - Water;  
1 - Evergreen Needleleaf Forest;  
2 - Evergreen Broadleaf Forest;  
3 - Deciduous Needleleaf Forest;  
4 - Deciduous Broadleaf Forest;  
5 - Mixed Forest;  
6 - Closed Shrubland;  
7 - Open Shrubland;  
8 - Woody Savana;  
9 - Savana;  
10 - Grassland;  
11 - Permanent wetlands;

- 12 - Cropland;
- 13 - Urban and built-up;
- 16 - Barren or sparsely vegetated

**References:**

McDonald, K.C., J.S. Kimball, E. Njoku, R. Zimmermann, and M. Zhao, 2004. Variability in springtime thaw in the terrestrial high latitudes: Monitoring a major control on the biospheric assimilation of atmospheric CO<sub>2</sub> with spaceborne microwave remote sensing. *Earth Interactions* 8(20), 1-23.

Kimball, J.S., K.C. McDonald, and M. Zhao, 2006. Spring thaw and its effect on terrestrial vegetation productivity in the western Arctic observed from satellite microwave and optical remote sensing. *Earth Interactions* 10(21), 1-22.

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