**Global fractional open water cover dynamics derived from SMAP, Version T (2015.6-2016.5)**

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**URL: http:// files.ntsg.umt.edu/data/SMAP\_FW\_9KM**

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**I. Introduction**

This ***test*** version data set provides land surface fractional open water (*fw*) inundation dynamics over the globe for the period 2015/06-2016/05. The *fw* parameter is defined on a per grid cell basis and represents the aerial portion of a grid cell covered by open water. The *fw* parameter is estimated from daily L-band satellite microwave brightness temperature (*Tb*) retrievals, and averaged to a 30-day time step. The data were developed using SMAP ascending L-band *Tb* observations,with other ancillary inputs from UMT AMSR2 land parameter data record and GOES-5 land surface temperatures. The algorithm for the dataset is similar to *Du et al.,2016* and under further development.

Du, J., Kimball, J.S., Jones, L.A. and Watts, J.D., 2016. Implementation of satellite based fractional water cover indices in the pan-Arctic region using AMSR-E and MODIS. *Remote Sensing of Environment*, *184*, pp.469-481.

**II. Data Format**

The data are stored in one file for each month from 2015/06-2016/05. Each file contains a 2D binary array in **float** data type (**3856** columns, **1624** rows) describing *fw* conditions of the globe of the given month. The data are described below:

Spatial Representation Type: Raster

Data Type: 4-byte float

Number of Bands: 1

Number Columns: 3856

Column Resolution: 9008 meter

Number Rows: 1624

Row Resolution: 9008 meter

Fill value: -999.0

Projection:  9-km Global EASE-GRID Version 2 (Brodzik et al., 2014)

DATUM: WGS\_1984

Cell value: fractional open water ranging from 0.0 – 1.0

**III. File naming convention**

**SMAP\_FW\_09km\_{year}\_{doy1}\_{doy2} \_{AD}.bin**

**SMAP** represents SMAP observations.

**09km** is the posted spatial resolution

**FW** represents fractional water

**year** (format yyyy) is the year the data represented

**doy1** (format ddd) is the starting day of year (doy) of the data

**doy2** (format ddd) is the ending day of year (doy) of the data

**AD** (“A” or “D”) is the SMAP ascending or descending orbits