Arctic salinity from space: Monitoring the freshwater system

Justino Martínez[1], Carolina Gabarró[1], Verónica González-Gambau[1], Cristina González-Haro[1], Estrella Olmedo[1], Joaquim Ballabrera-Poy[1], Antonio Turiel[1], Rafael Catany[2], Manuel Arias[2], Rhiannon Davies[2], Laurent Bertino[3], Jiping Xie[3], Roshin P. Raj[3], Roberto Sabia[4], Wenqing Tang[5], Simon H. Yueh[5]

[1]Barcelona Expert Center, Institute of Marine Sciences, CSIC, Physical and Technological Oceanography, Barcelona, Spain
[2]Argans Ltd., Plymouth, United Kingdom — [3]Nansen Environmental and Remote Sensing Center, Bergen, Norway
[4]Telespazio-Vega for European Space Agency, Frascati, Italy — [5]Jet Propulsion Laboratory, Pasadena, CA, United States

Arctic+ Salinity

ESA ITT: AO/1-9158/18/I-BG

arcticsalinity.argans.co.uk

Arctic+ salinity is an ESA's Invitation To Tender devoted to provide a better description of salinity gradients, freshwater fluxes and currents than the obtained until now from SMOS derived products. The result is a product capable of characterize the Arctic salinity and monitor some aspects of the climate change.

Arctic+ salinity ITT started in December 2018 and it will finish in June 2020. Now we are presenting the resulting salinity product that will be freely distributed in January. The next step is to provide specific studies about the Arctic.

Stay tuned to our oral contribution in Ocean Sciences Meeting 2020!

ARGANS

CSIC Consejo Superior de Investigaciones Científicas — ICM Institut de Ciències del Mar — NERSC

Data distribution

BEC Barcelona Expert Center

Arctic+ salinity product will be publicly available in January. Our distribution list is open to inform about news concerning this and oher products.

Our products are distributed by ftp. You can freely register to this service.

Arctic+ salinity daily 9-day maps will be distributed in WGS 84 / NSIDC EASE-Grid 2.0 North EPSG:6931 (25 km) for years 2011-2019.

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This is the SMOS satellite

2D ANIMATION

Questions? Contact with Justino at justino@icm.csic.es

Kangerdlugssuaq Fjord

500 m

200 m

Internal waves

Norwegian current

Freshwater current

Pechora

Discharges

Dvina

Elbe

Rhine

Discharges

Arctic rivers Pacific inflow

Olenkov

Mackenzie

Lena

Yukon

Extreme 2015 run off of Ob river seems to be originated by continental melting. Probably linked to abnormally high temperatures in summer.

Ob'

Lena

Olenkov

Yenisei

2015 Ob' run off

2D ANIMATION

Sea Surface Salinity 28 30 32 34 36

09/2019

3D ANIMATION

Sea Surface Salinity 28 30 32 34 36

10/2014

2D maps and the corresponding animations have been made using Panoply (https://www.giss.nasa.gov/tools/panoply/). 3D animation has been made using ParaView (https://www.paraview.org/)

AGU100 Advancing Earth and Space Science

AGU FALL MEETING — Thursday, 12 December 2019

SMOS MISSION

providing L-band data since 2010

Soil Moisture and Ocean Salinity (SMOS) mission is measuring those variables from space since 2010.

SMOS, launched on 2 November 2009, is one of the ESA's Earth Explorer missions. Its single payload, the Microwave Imaging Radiometer by Aperture Synthesis radiometer (MIRAS), is the first 2D synthetic aperture interferometric radiometer in space. It operates in L-band at 1.413 GHz.

SMOS provides brightness temperature 2D images about 1400 km wide every 1.2 seconds.

esa

Rivers freshwater signatures are well characterized

In-situ

Waters of Ob

2011

Northern latitude

Eastern longitude

54th cruise of R/V "Academic Mstislav Keldysh" (Sep. 11th - Oct., 7th, 2011)
EGU -2012
A.A.Polukhin & P.N. Maskaveev
The contribution and spatial distribution of Ob and Yenisei runoff on surface layer of the Kara Sea.

Download A.A.Polukhin EGU poster

Arctic+ product

Ob'

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