

SYNTOOL ARCTIC

AS A TOOL TO PERFORM SEA SURFACE MONITORING IN THE ARCTIC REGION

Speaker

Ilya Bolkhovsky

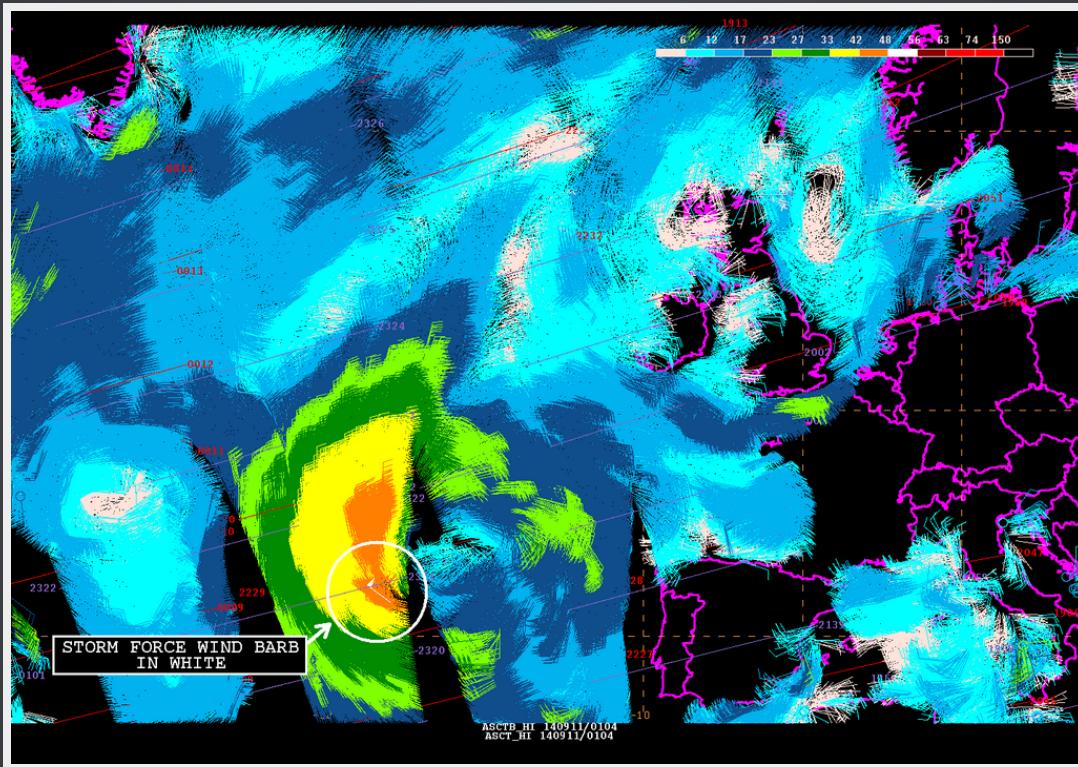
Contributors

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ENVIRONMENTAL MONITORING SOFTWARE



Full image of ASCAT wind retrievals from roughly 23Z 09/10/14 showing storm force low in the eastern Atlantic. © EUMETSAT

PRODUCTS

- Scatterometer
- SAR
- Radiometry
- Altimetry
- Optical
- Model

FORMATS

- Binary
- ASCII
- NetCDF
- HDF
- GRIB
- ...

AND ALSO

- Spatial resolutions
- Spatial coverages
- Temporal coverages

MAIN CHALLENGE IS
THE VARIETY OF

WHAT DO WE NEED TO BUILD
AN ENVIRONMENTAL MONITORING
SOFTWARE?

A SINGLE ENTRY POINT
TO SEARCH AND ACCESS DATA
(AT FIRST).

SATIN

OUR OCEAN REMOTE SENSING DATA CATALOG

Over 30 pre-selected products of sea surface temperature, sea ice concentration, scatterometer wind, altimetry and other.

<http://satin.rshu.ru>

The screenshot displays the SATIN Data Catalog interface, version 1.10.3.0. The top navigation bar includes links for 'ABOUT', 'FAQ', and 'RU'. Below the header, there are four filter dropdowns: 'REGION SELECTION', 'TIME', 'PARAMETER', and 'SENSOR', followed by a 'PLATFORM' dropdown and a link to '28 products'. The main content area is a 4x7 grid of product cards, each featuring a thumbnail image, the product name, and its parameters. The products listed are:

- Atmospheric Water Vapor, Ocean Winds, Sea Surface Temperature, Cloud Liquid Water, SOLAB_AMSR_E_L2_NN, 3048 granules
- Ocean Winds ASCAT-L2-12km, 28968 granules
- Sea Surface Temperature ERSST-V9B, 1908 granules
- Sea Surface Temperature OISST-AVHRR-AMSR-V2, 3413 granules
- Sea Surface Temperature IFR-L4-SSTmrc-ODYSSEA-GLOB_010, 1532 granules
- Sea Surface Temperature IFR-L4-SSTmrc-ODYSSEA-MED_002, 1435 granules
- Ocean Winds ASCAT-L2-Coastal, 20000 granules
- Sea Ice, Sea Surface Temperature OSTIA, 3619 granules
- Ocean Winds OSCAT_L2B12, 53418 granules
- Ocean Waves AVISO_NRT_MSWH_MERGED, 2109 granules
- Ocean Winds AVISO_NRT_MWIND_MERGED, 2093 granules
- Absolute Geostrophic Velocities AVISO_DT_REF_MADT_MERGED_UV, 1019 granules
- Absolute Dynamic Topography AVISO_DT_REF_MADT_MERGED_H, 2008 granules
- Absolute Geostrophic Velocities AVISO_NRT_MADT_MERGED_UV, 2121 granules
- Absolute Dynamic Topography AVISO_NRT_MADT_MERGED_H, 4242 granules
- Sea Ice ASI-AMSR, 3962 granules
- Sea Ice NSIDC_SSMI_NRT_SEAICE, 911 granules
- Sea Ice NSIDC_SSMI_NRT_SEAICE, 911 granules
- Sea Ice NSIDC_SSMI_SEAICE_GSFC, 11657 granules
- Sea Ice NSIDC_SSMI_SEAICE_GSFC, 411 granules
- Sea Ice NSIDC_SSMI_SEAICE_GSFC, 11657 granules
- Sea Ice NSIDC_SSMI_SEAICE_GSFC, 411 granules
- Atmospheric Water Vapor, Ocean Winds, Cloud Liquid Water, SSMI_NC, 27609 granules
- Sea Surface Temperature OISST-AVHRR-V2, 12612 granules
- Atmospheric Water Vapor, Ocean Winds, Cloud Liquid Water, SSMI_NC_3DAY, 27332 granules
- Ocean Winds ASCATB-L2-25km, 9774 granules
- Ocean Winds ASCATB-L2-Coastal, 5759 granules

THE CATALOG PROVIDES

- Clear UI for beginners
- Long time series of measurements including today's measurements
- RESTful API for data search
- Standardized data access via OPeNDAP servers

ALRIGHT,
WE HAVE DATA.

ACTUALLY
A LOT OF DATA...

BUT WITH DIFFERENT
RESOLUTION AND COVERAGE.

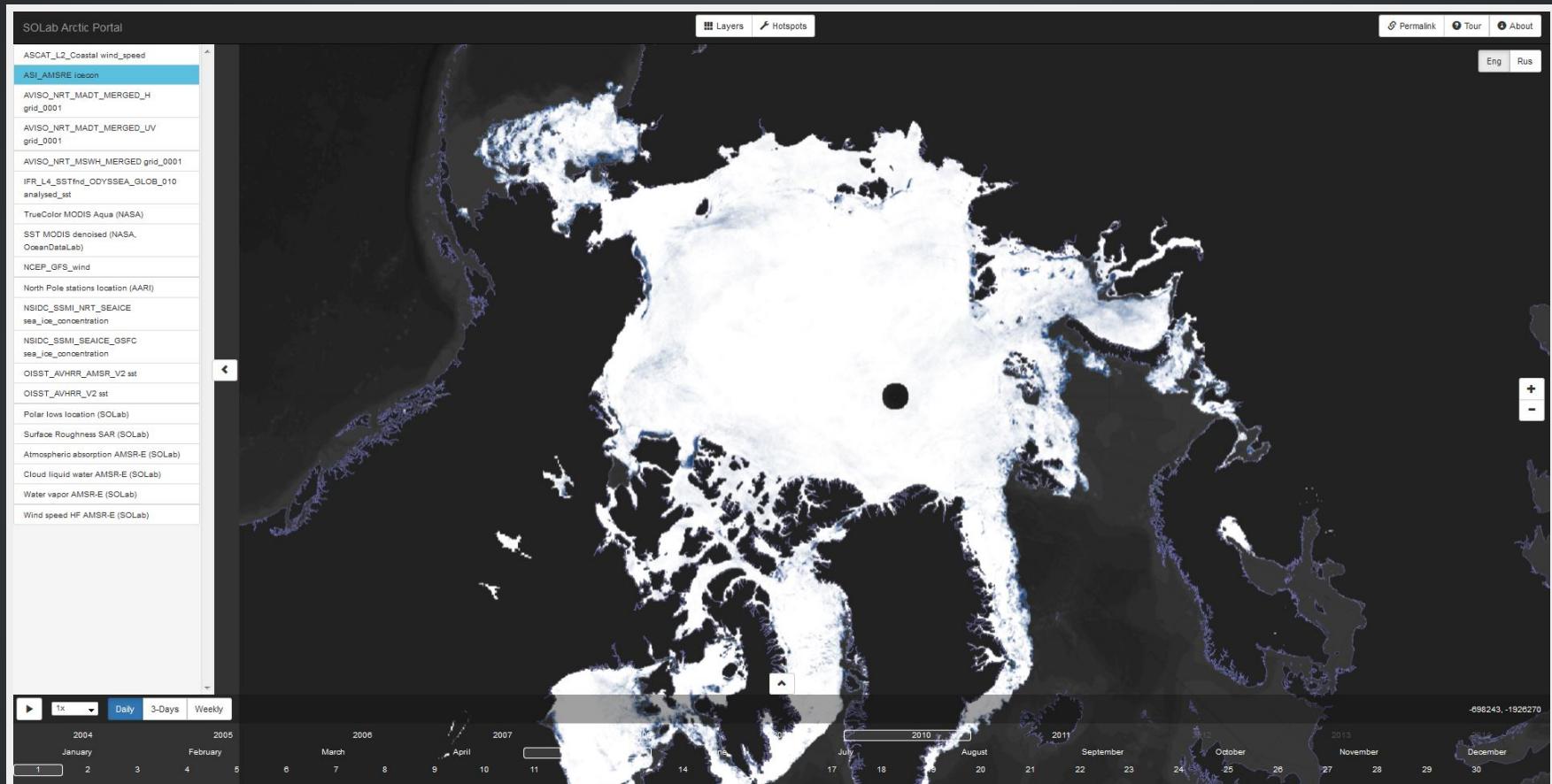
HOW TO SHOW THEM TOGETHER?

PUT ALL DATA ON A MAP

YET IT IS NOT SO SIMPLE:

1. Retrieve requested timespan of data
2. Apply masks and perform parameters correction
3. Reproject data
4. Choose palette and visualization strategy
5. Create tiles

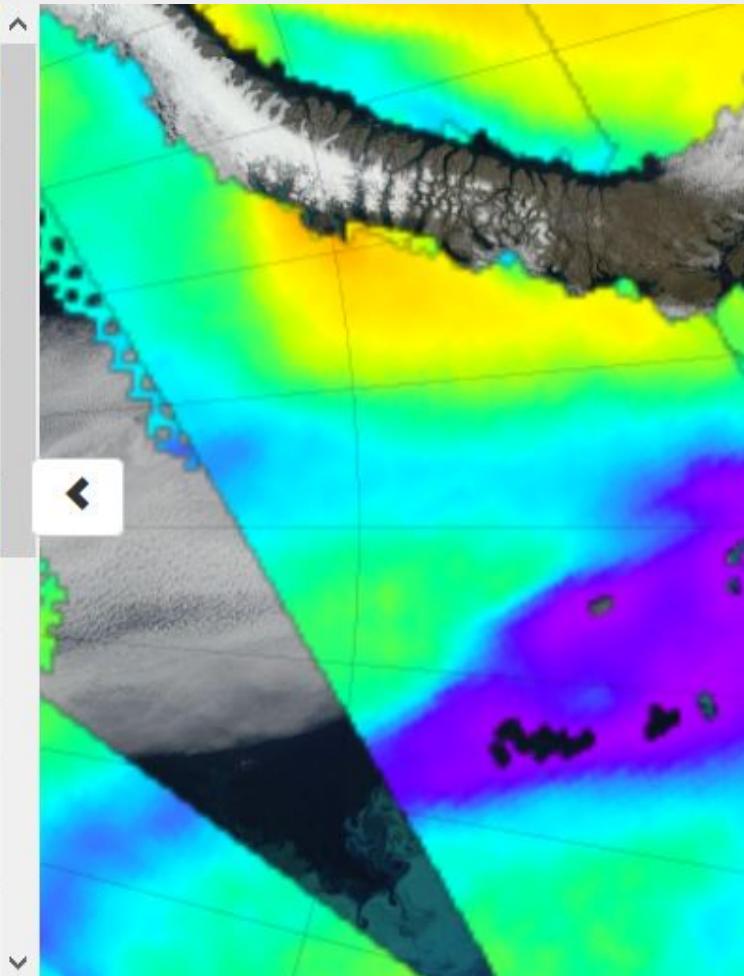
SYNTOOL ARCTIC PORTAL



<http://arctic.solab.rshu.ru>

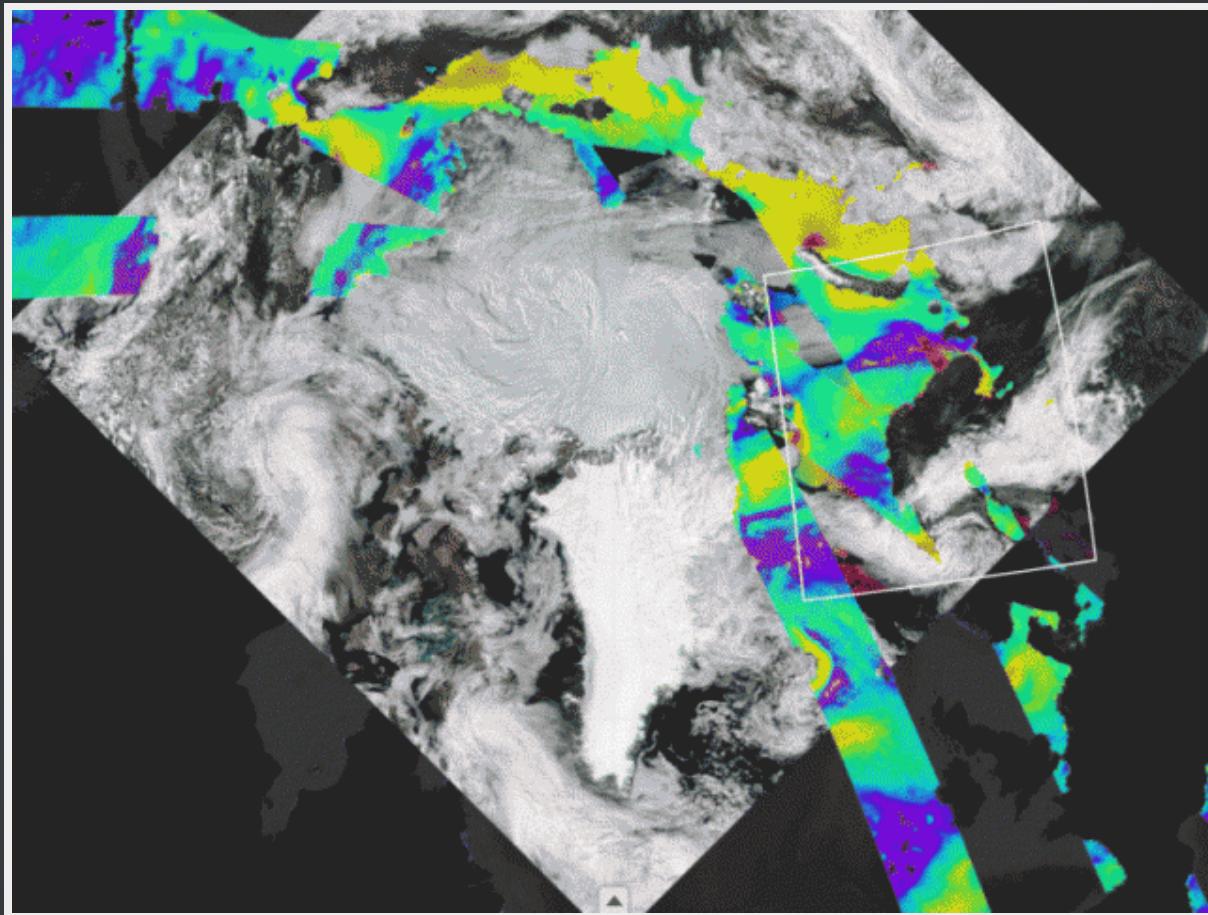
COMBINE DIFFERENT PRODUCTS

- ASCAT_L2_Coastal wind_speed
- ASI_AMSRE icecon
- AVISO_NRT_MADT_MERGED_H grid_0001
- AVISO_NRT_MADT_MERGED_UV grid_0001
- AVISO_NRT_MSWH_MERGED grid_0001
- IFR_L4_SSTfnd_ODYSSEA_GLOB_010
analysed_sst
- TrueColor MODIS Aqua (NASA)
- SST MODIS denoised (NASA, OceanDataLab)
- NCEP_GFS_wind
- North Pole stations location (AARI)
- NSIDC_SSML_NRT_SEAICE
sea_ice_concentration
- NSIDC_SSML_SEAICE_GSFC
sea_ice_concentration



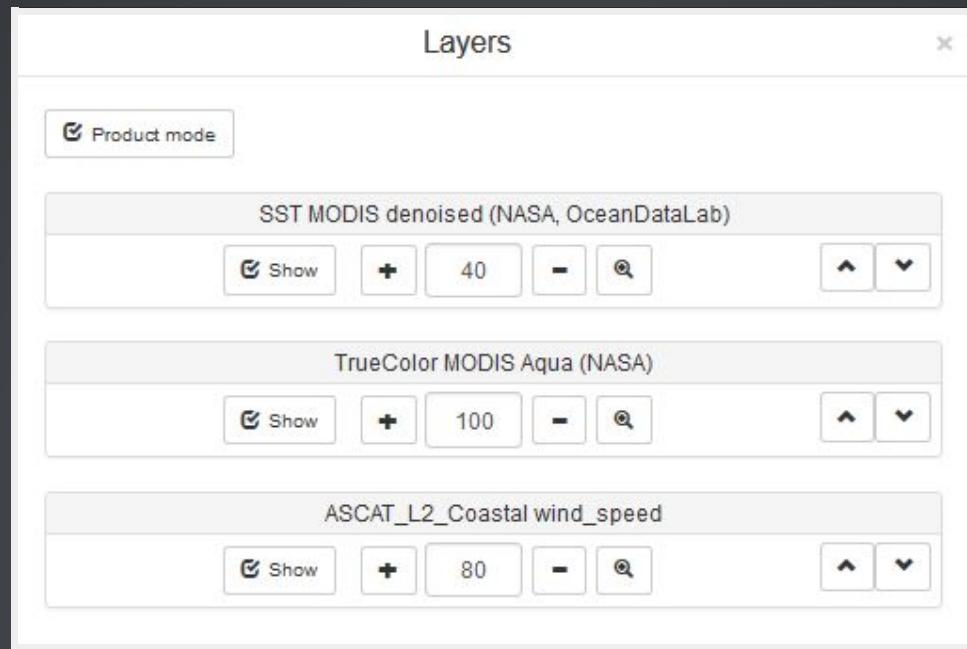
Catalog of products: multiple items can be selected

COMBINE DIFFERENT PRODUCTS



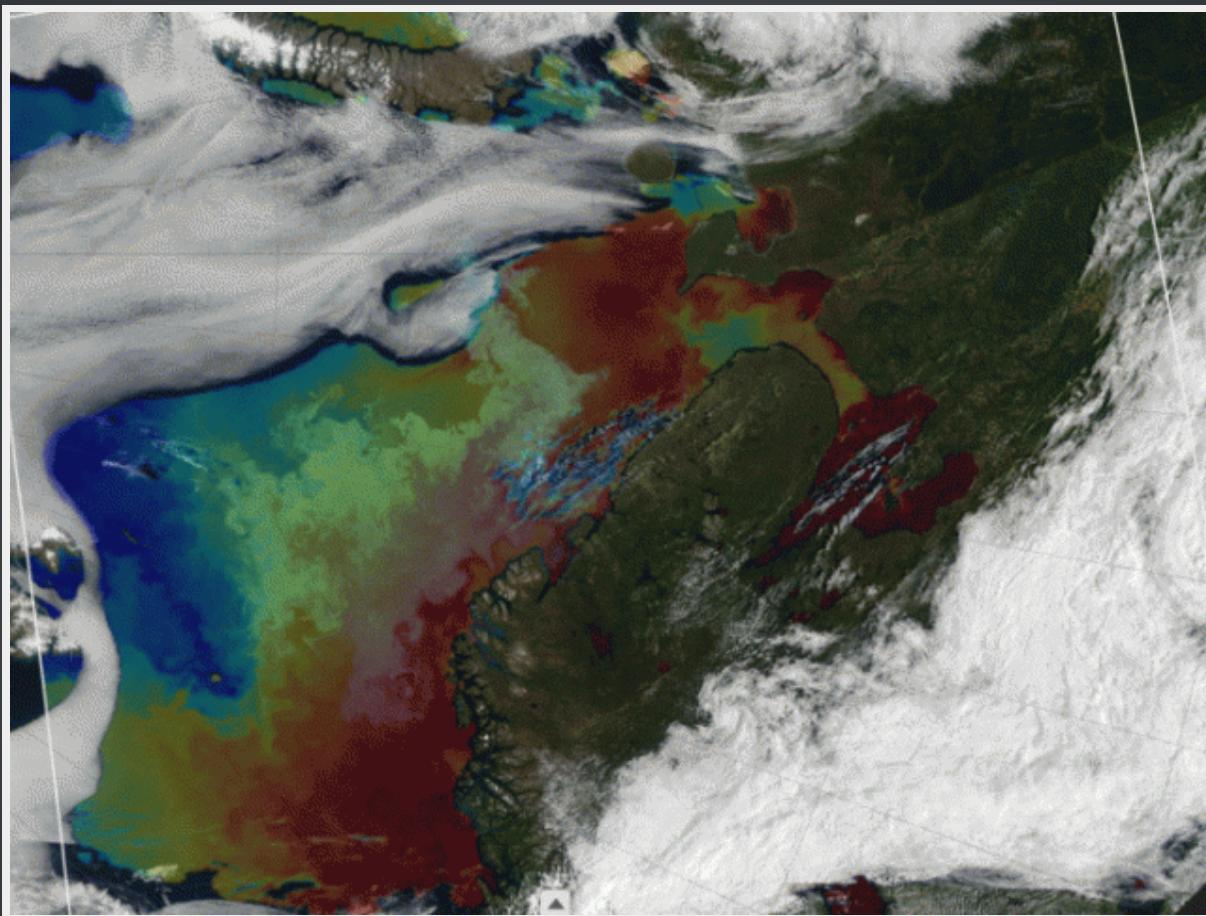
TrueColor, Sea Surface Temperature (both MODIS)
and Scatterometer wind (ASCAT)

CHANGE LAYERS TRANSPARENCY



This dialog allows to change layers order and transparency

CHANGE LAYERS TRANSPARENCY



Phytoplankton bloom and Sea Surface Temperature (MODIS)

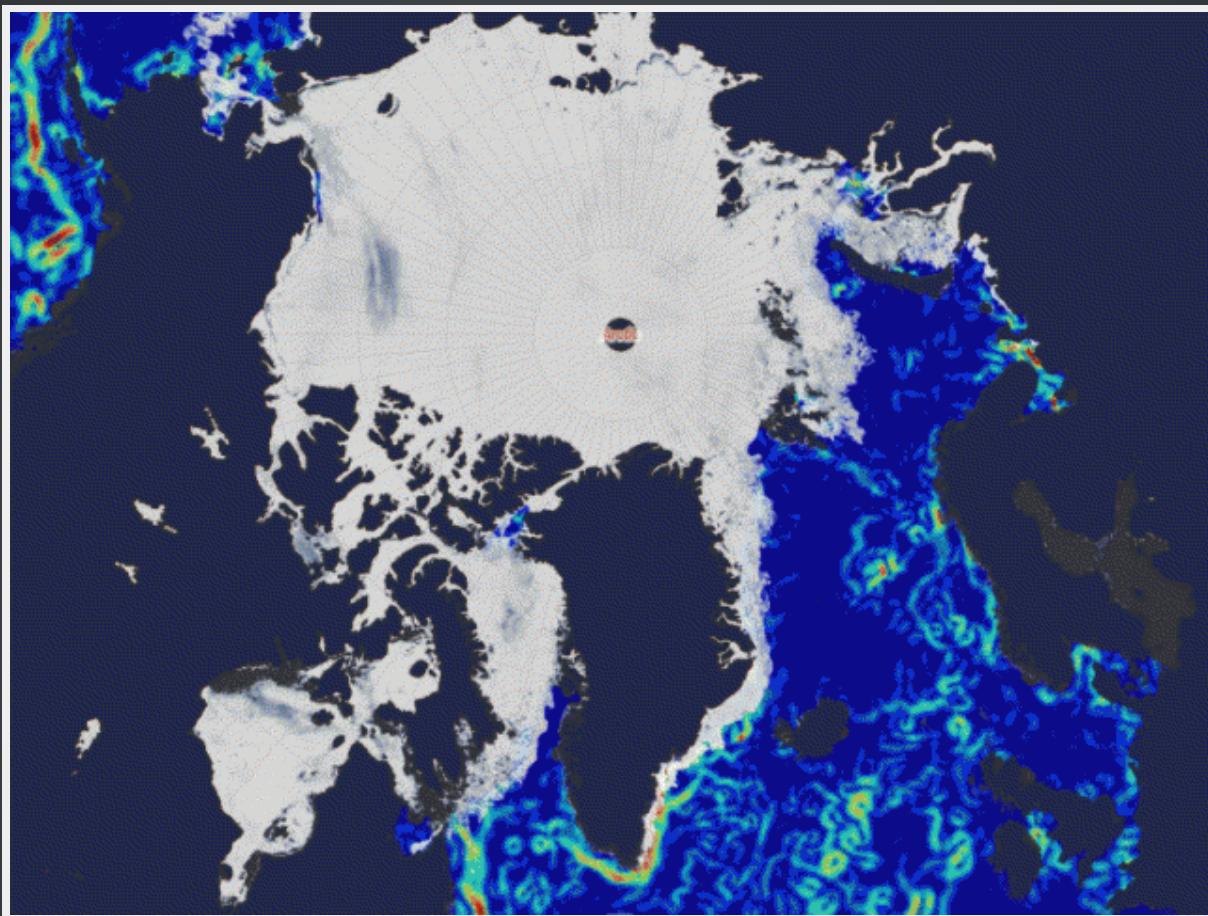
TIMELINE



Navigate back and forward through the archive.

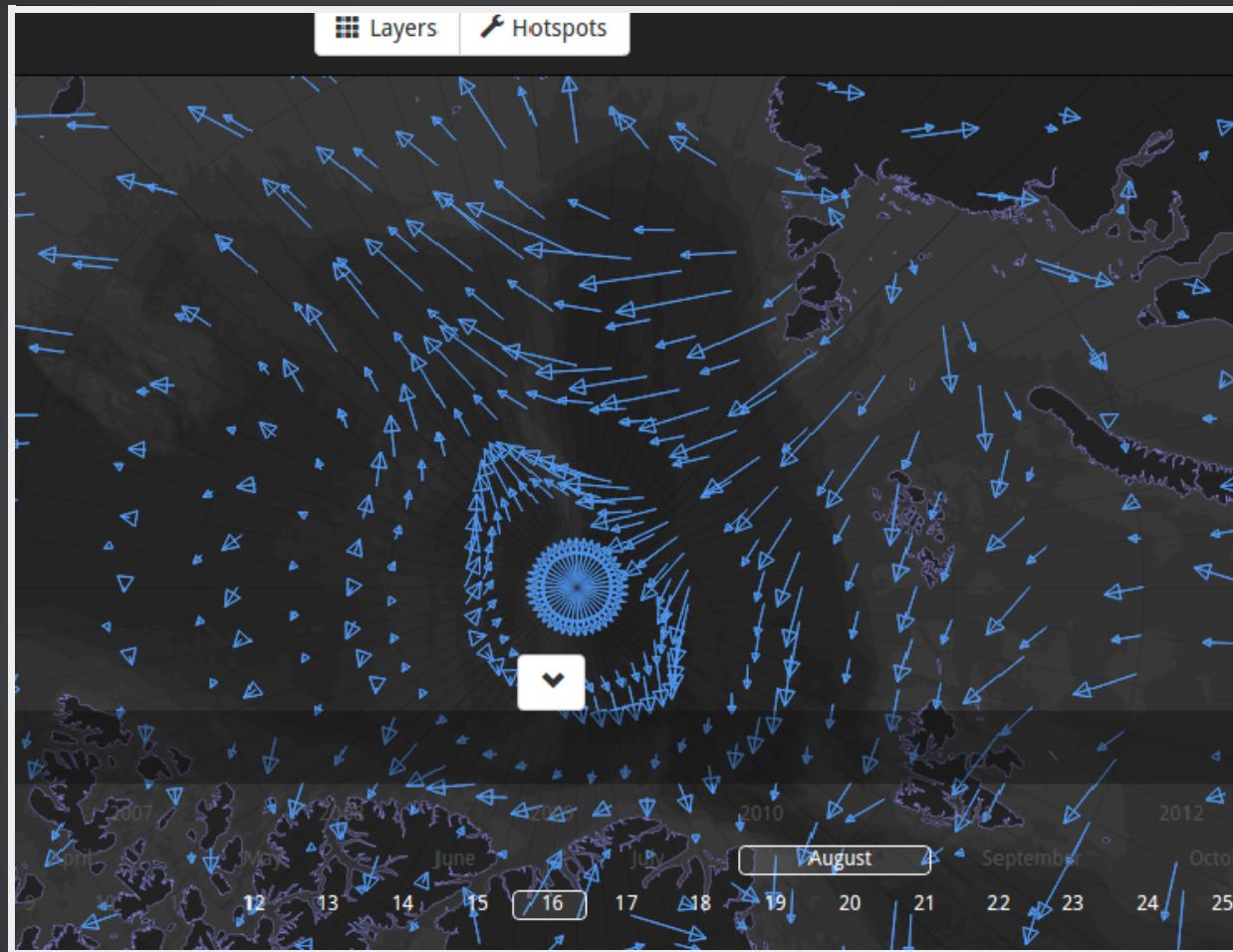
Playback button for dynamic visualization.

DYNAMIC VISUALIZATION



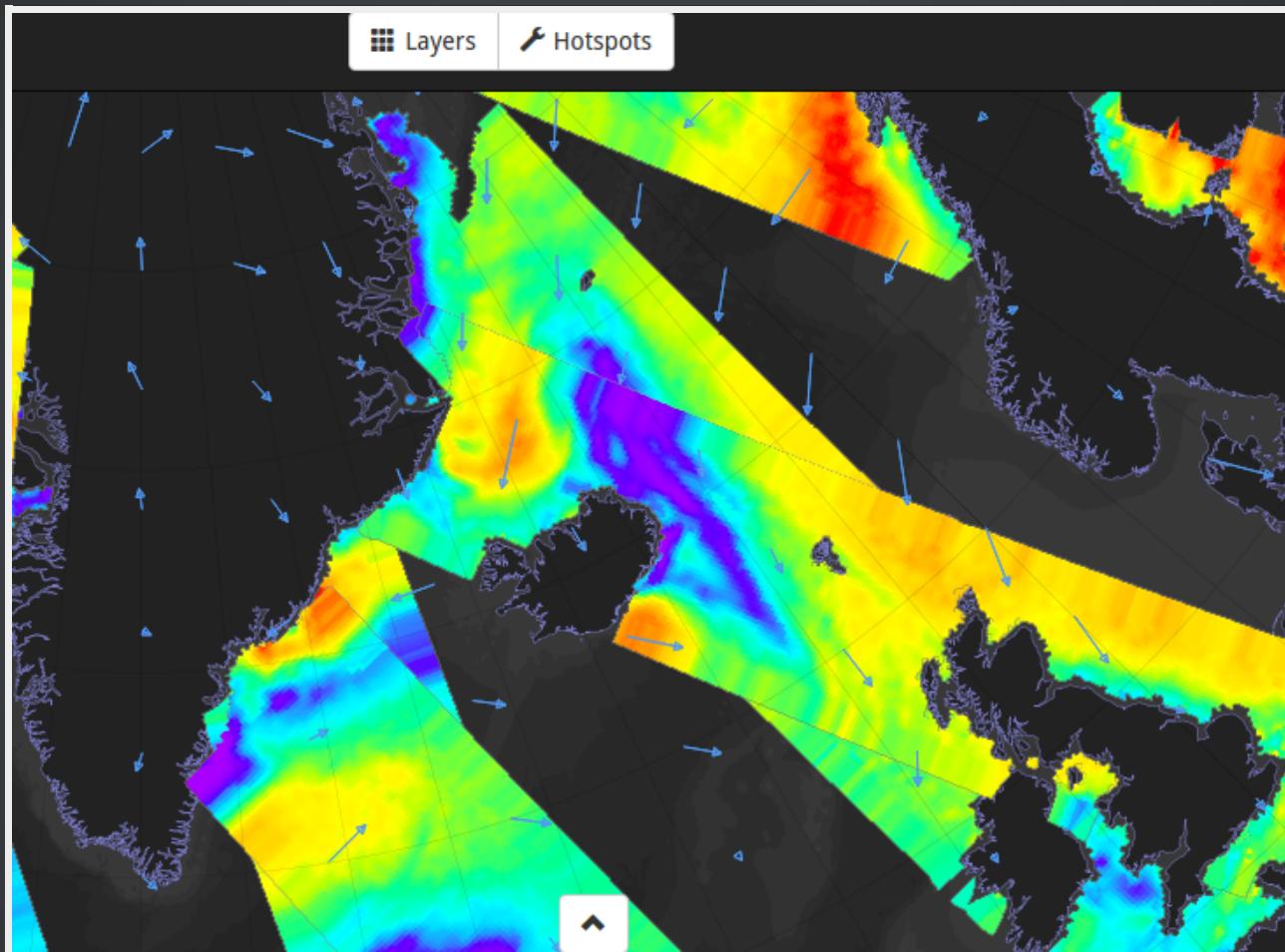
Sea Ice Concentration (AMSRE)
and Current Geostrophic Velocities (AVISO)

VECTORIAL DATA



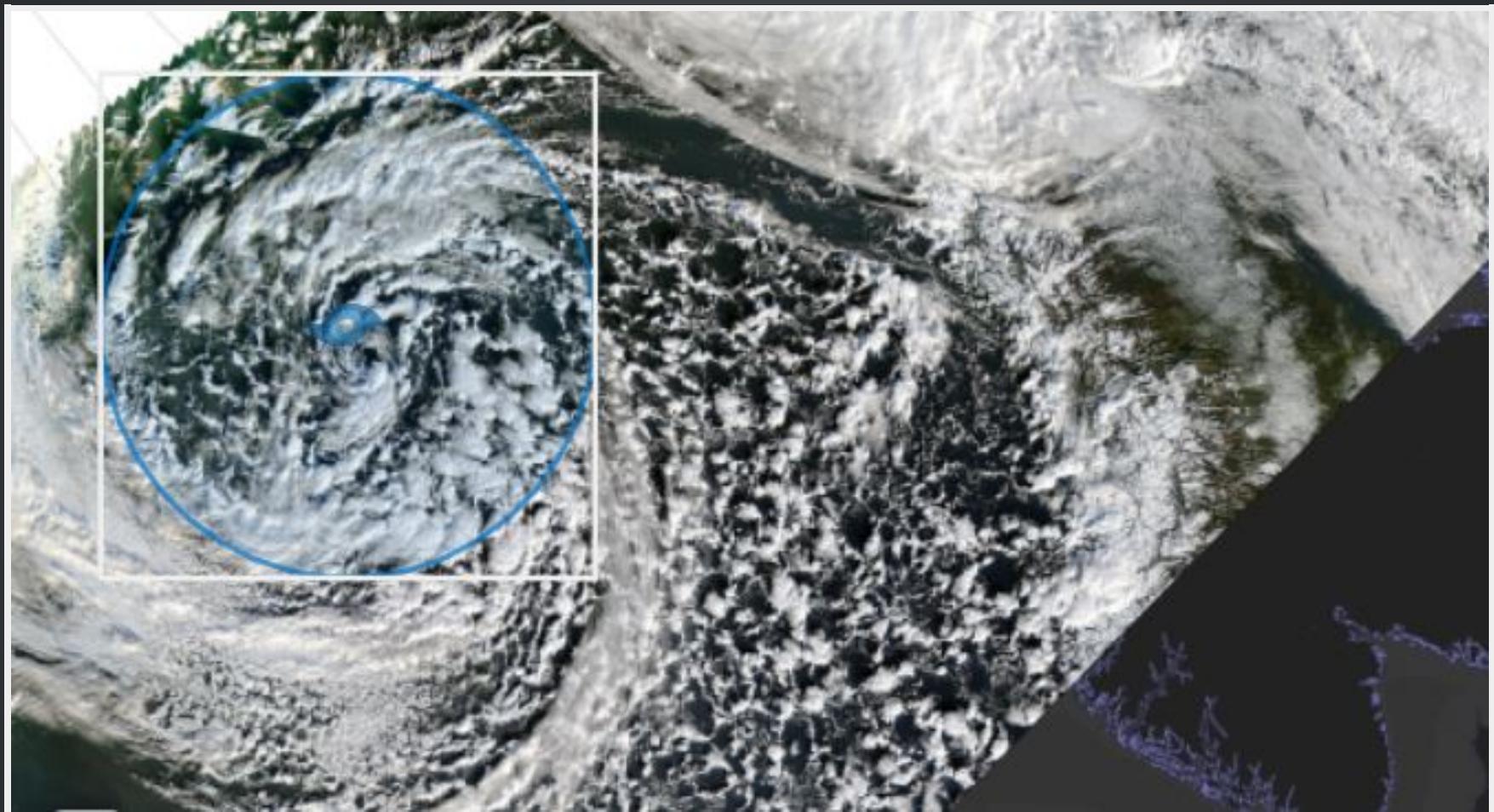
Model wind (NCEP GFS)

VECTORIAL DATA



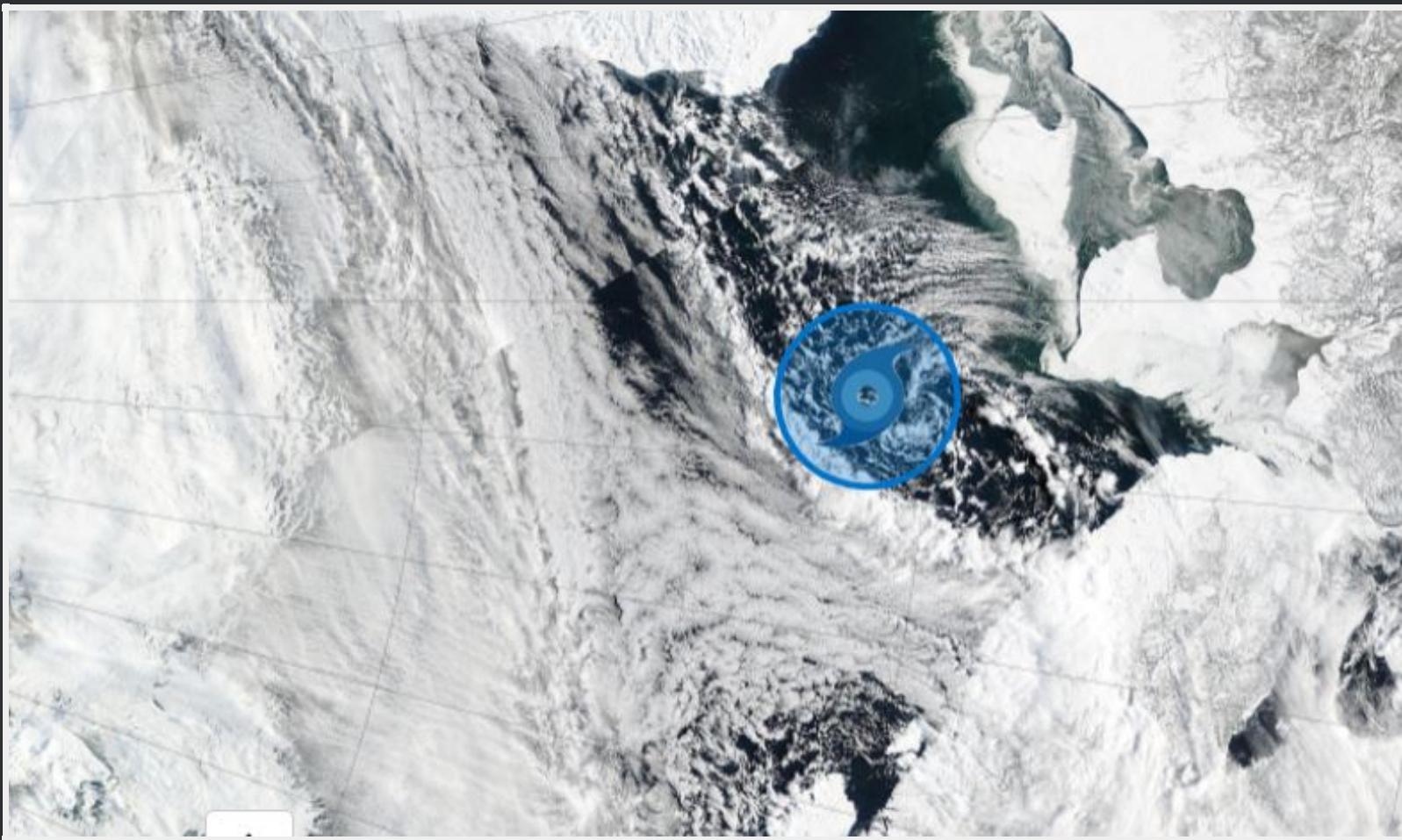
Model wind (NCEP GFS)
and Scatterometer wind (ASCAT)

VECTORIAL DATA



TrueColor (MODIS) and Polar low location (SOLab)

VECTORIAL DATA



TrueColor (MODIS) and Polar low location (SOLab)

SYNTOOL ARCTIC PORTAL

<http://arctic.solab.rshu.ru>

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SPEAKER

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THANK YOU!
DO YOU HAVE ANY QUESTIONS?