

What is NanSat?

Objective: To simplify scientific work on many different types of geospatial raster data at the same time, and to distribute the results following international standards

- The **Nansen Center Satellite** data processing framework (NanSat) is based on GDAL and uses several modules and libraries (Numpy, Scipy, Matplotlib, minidom, Proj4, HDF, NetCDF) in Python.
- Basic functions of NanSat are :
 - Read geospatial data from many different formats (currently 24)
 - Process data
 - Export data to figures (tif, png, bmp, jpg), NetCDF and KML
- To simplify scientific work, NanSat features:
 - Access to data by variable names, e.g. "sigma0" instead of "bandNo = 1"
 - Simple re-projection
 - Simple methods for taking subsets or resize image with one single command, e.g., write_figure(), write_map(), write_kml, print
 - Easy addition of scientific algorithms
 - Modular and extendable construction

How to get it?

Nansat is available at

<https://github.com/nanscenter/nansat>



Example usage

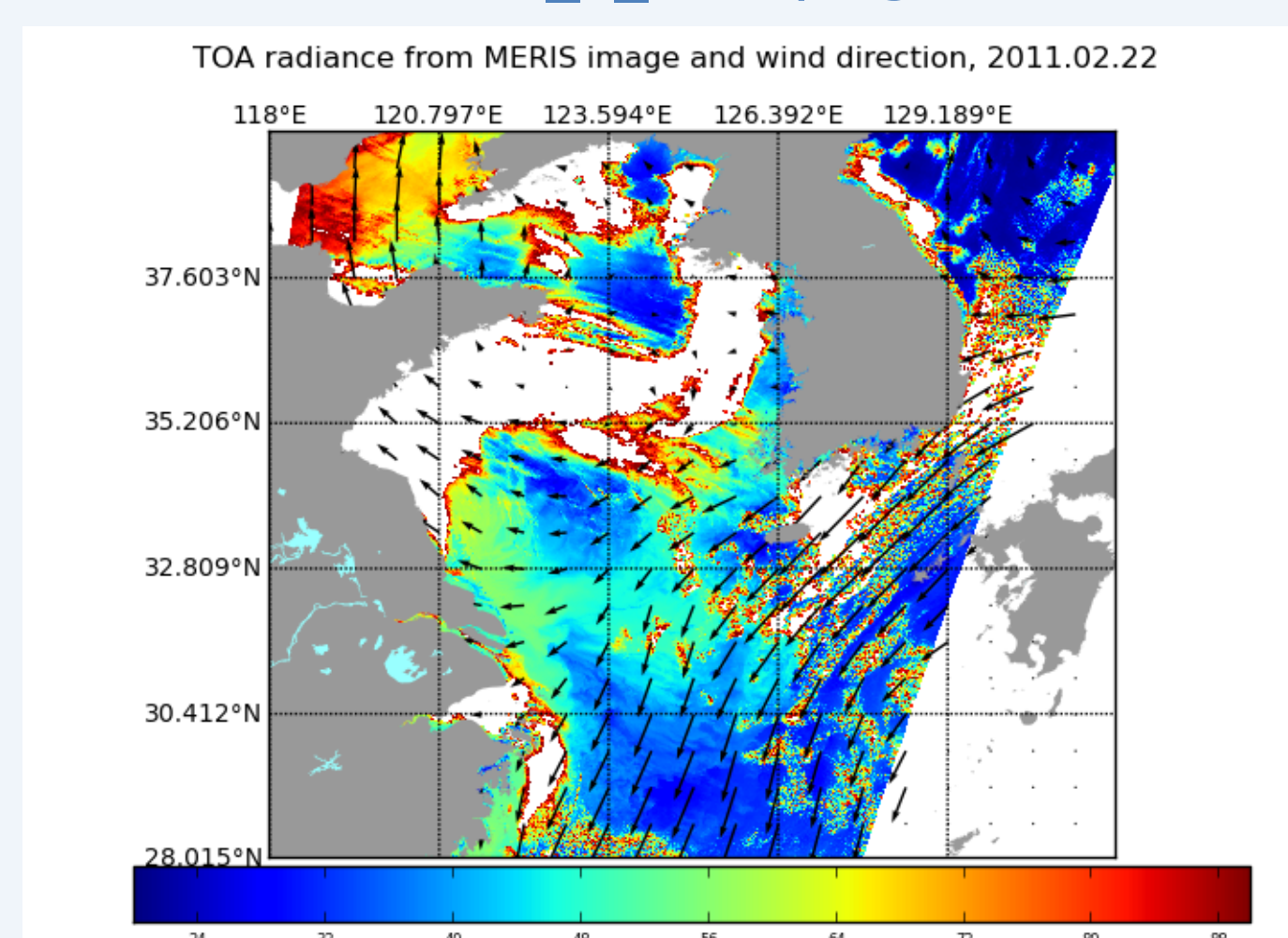
Studying air-sea interaction in the Yangtze River estuary on 22 FEB 2011. NanSat is used for mapping of wind direction and TOA radiance at 560 nm.

```

from nansat import Nansat, Domain, Nansatmap
# open ENVISAT/MERIS L1 image
n =
Nansat('MER_RR_1PRACR20110222_020119.N1')
# define region-of-interest (ROI)
d = Domain(4326, '-lle 118 28 132 40 -ts 1000 800')
# reproject input data onto ROI
n.reproject(d)
# get data from input image using meaningful names

L_560 = n['L_560']
u = n['zonal winds']
v = n['meridional winds']
# create map canvas
nMap = Nansatmap(n, resolution='f')
# add radiance grid to the map
nMap.pcolormesh(L_560)
# add wind direction
nMap.quiver(u, v, quivectors=20)
# add other map attributes: colorbar, grid lines, title
nMap.add_colorbar()
nMap.drawgrid()
plt.suptitle('TOA radiance from MERIS image and
wind direction, 2011.02.22')
# save the generated map into a PNG file
nMap.save('20110222_L_560.png')

```



Example products

Studying mesoscale eddies in the middle of the East China Sea on 6.FEB 2011. NanSat is used for collocation of radarsat backscatter at VV polarization from ENVISAT/ASAR image and remote sensing reflectance at three wavelengths (413, 560 and 709 nm) from ENVISAT/MERIS image.

