NEODAAS Satellite Data and Products

All raw data received directly at Dundee may be provided as full passes or sub-scenes in standard Level 0 & 1 formats. Imagery from the raw data can be provided in standard image formats (e.g. GIF) with options for sensor calibration, reprojection, grids, satellite/solar angle information and photo quality hardcopy.

Dundee archive availability:

- AVHRR: Nov. 1978 – Present.
- SeaWiFS: Sep. 1997 – Dec. 2004
- CZCS: Aug. 1979 – Jun. 1986
- MODIS: May 2000 – Present

Note that 4km SeaWiFS data are available for later dates

Sea-surface temperature from Advanced Very High Resolution Radiometer (AVHRR) and NASA Moderate Resolution Imaging Spectrometer (MODIS)

Standard AVHRR products:

- Sea-surface temperature (SST) image annotated with cloud mask, coastline, map grid and scale bar. Calculated using NOAA global operational NLSST equations with a low-noise modification.
- Full HRPT resolution: 1.1 km/pixel at nadir.
- Date range: 1981 onwards, though SST equations may not be available for certain data prior to 1993.

Standard Aqua-MODIS SST products:

- SST image at 11µm annotated with cloud mask, coastline, map grid and scale bar. Calculated using the NASA standard long-wave SST algorithm from the Ocean Biology Processing Group.

Optional products:

- Raw AVHRR radiance channels 1-5 without cloud mask, e.g. channel 4 for infrared, or channel 2 for visible/near-infrared.
- SST composite images, showing the median SST for each location in the region during 1 day, rolling 3 or 7 days, a week or month. Resolution is usually reduced to 4.4 km/pixel for AVHRR.
- Composite ocean front maps from AVHRR SST data (from Miller, 2009)
- For areas outside the Dundee receiving range, we may be able to acquire AVHRR Local Area Coverage (LAC) at 1.1 km resolution or Global Area Coverage (GAC) at 4.4 km resolution from the US NOAA Comprehensive Large Array-data Stewardship System, though the available scenes may be limited.
- Global daily or monthly SST from NASA Pathfinder project at 4 or 9 km resolution, or weekly 18 km.

Ocean colour from NASA MODIS, ESA MERIS, or SeaWiFS

Standard ocean colour products:

- In-water chlorophyll-*a* concentration calculated using latest operational algorithm (currently Aqua-MODIS OC3M, MERIS algal-1 or algal-2, or SeaWiFS OC4v4).
- Pseudo-true colour composite image (using 555, 510 and 443 nm channels or similar).
- Water-leaving radiance at visible wavelengths: e.g. 412, 443, 490, 510, 555 and 670 nm.
- Diffuse attenuation coefficient at 490 nm (SeaWiFS and MODIS).
- Aerosol radiance and aerosol optical depth at 865 nm, ratio of aerosol radiance at 865 and 760 nm.
- All products annotated with cloud mask, coastline, map grid and scale bar.
- Standard HRPT resolution: 1.1 km/pixel at nadir.
- Date range: SeaWiFS Sep. 1997 (launch) onwards; Aqua-MODIS 2002 – date and MERIS 2004 - date archived locally.

Optional products:

- Composite images, showing the median chl-*a* or other product during 1 day, rolling 3 or 7 days, a week or month.
- MODIS Case 2 chl-*a* algorithm (OC5) more suited to turbid shelf seas.
- MERIS Yellow Substance and Total Suspended Material images
- Higher resolution data (500m MODIS, 300m MERIS) may be available, please contact us for details.
- For areas outside the Dundee receiving range, we may be able to acquire LAC at 1.1 km resolution or GAC at 4.4 km resolution from the NASA OceanColor service.
- Global daily, 8-day or monthly chl-*a* composites from NASA OceanColor at 4 or 9km resolution.
- CZCS ocean colour data from 1978-1986: European 1.1 km resolution archived at Dundee; global daily, weekly or monthly chlorophyll composites from NASA OceanColor at 18 km resolution.

Note: we can only provide SeaWiFS data to researchers who have already registered individually as authorised SeaWiFS users with NASA directly. Follow the 'online application' link at: http://oceancolor.gsfc.nasa.gov/SUPPORT/register.html

Non-marine data products

- MERIS Normalized Difference Vegetation Index (NDVI), either with or without atmospheric correction

Image data formats

- All products are provided as greyscale and coloured GIF/PNG images. In addition, SeaWiFS colour composite is provided as a 24-bit TIFF, and chlorophyll as a raw 8-bit data array.
- Map projections: Mercator for regions, geographic for global.

Options:

- MODIS & SeaWiFS products may be provided as 8-bit data arrays or GeoTIFF, or HDF format for analysis using SeaDAS.
- AVHRR SST images or composites may be provided as 8-bit data arrays or GeoTIFF.

Further information available on the NEODAAS web site: www.neodaas.ac.uk