

GLOBAL ENVIRONMENTAL DATABASES FROM CEOS AGENCIES

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KEY WORDS: Global Environmental-Databases, Satellite, Remote Sensing, Atmosphere, Land, Oceans, Environment, International.

ABSTRACT:

The Committee on Earth Observation Satellites (CEOS) is an international organization charged with coordinating international civil spaceborne missions designed to observe and study planet Earth. Comprising 44 space agencies and other national and international organizations, CEOS is recognized as the major international forum for the coordination of Earth observation satellite programs and for the interaction of these programs with users of satellite data worldwide.

CEOS was created in 1984 in response to a recommendation from the Economic Summit of Industrialized Nations Working Group on Growth, Technology, and Employment's Panel of Experts on Satellite Remote Sensing. This group recognized the multidisciplinary nature of satellite Earth observation and the value of coordination across all proposed missions.

The CEOS members collect, maintain, apply, and make available data from space missions that encompass the atmospheric, terrestrial, and oceanographic fields. Collectively, these members possess petabytes of Earth observation data critical to understanding the Earth environment. Uses include monitoring oil slicks, evaluating human-induced changes to the atmosphere, determining mineral exploration areas, assessing the environmental effects of volcanic eruptions, measuring the growth of urban areas, determining where landscapes have changed because of urban growth trends, improving the efficiency of fishing as a world food stock, monitoring pest infestation, managing crop production, predicting climate and weather, and numerous other applications vital to industry, national infrastructures, and the world as a whole.

The vast amount of satellite obtained, environmental data the CEOS members possess represents a fertile resource for researchers worldwide to exploit.

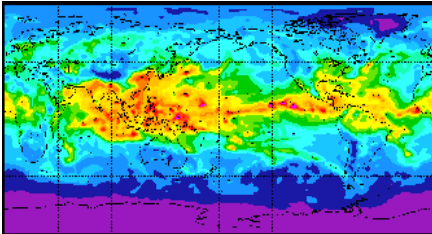
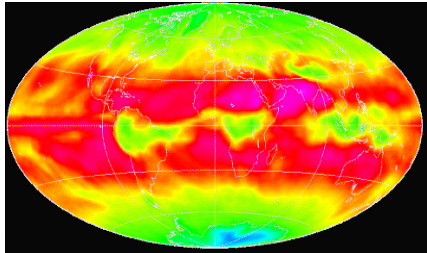
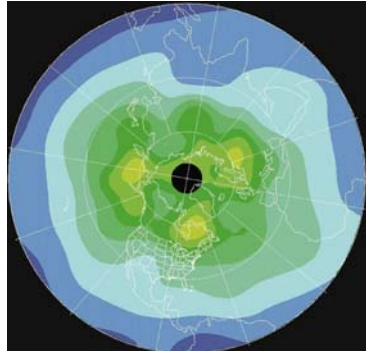
1. INTRODUCTION

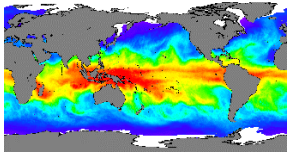
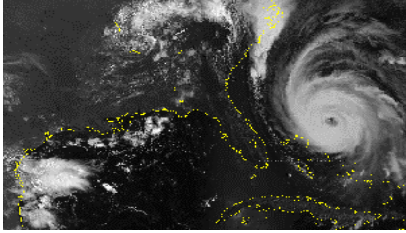
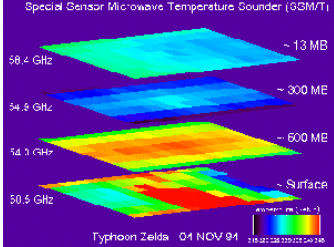
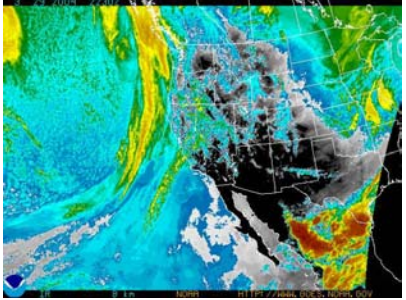
CEOS membership includes civil agencies and non-governmental organizations from around the world.¹ Several CEOS participants manage and provide Earth observation (EO) data products. A recent report commissioned by the CEOS Plenary directed the CEOS Working Group on Information Systems and Services (WGIS) to seek ways to improve the utilization of EO data managed by CEOS

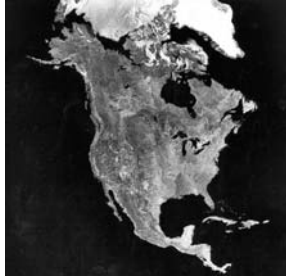
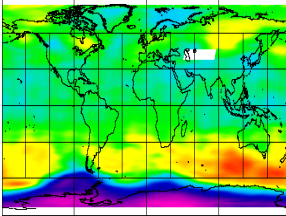
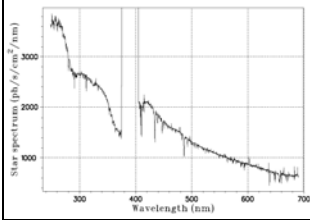
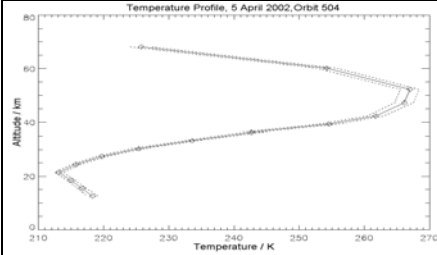
participants.² As a partial response to this guidance, the authors abstract and group within atmospheric, terrestrial and oceanographic scientific fields, the EO holdings offered by the CEOS participants. Within those fields we provide a description of the specific types of data in conjunction with data parameters such as temporal and spatial characteristics. We also describe access means for each data provider letting interested researchers seek further information or obtain data for their project use.



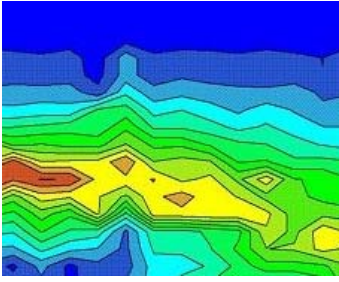
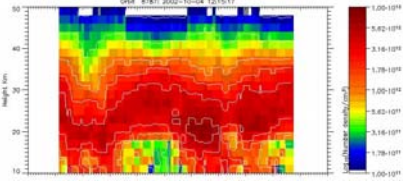
* Corresponding author.


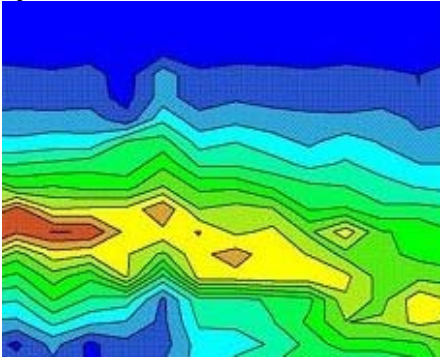
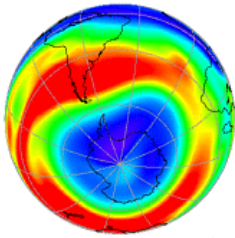

1.1. Atmospheric Data

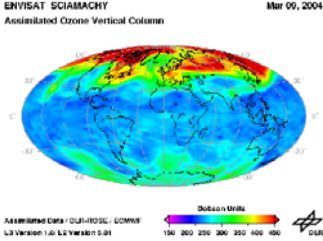
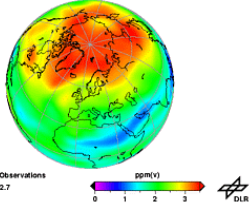
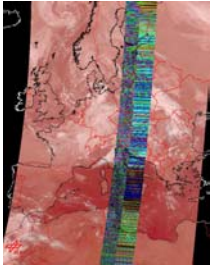
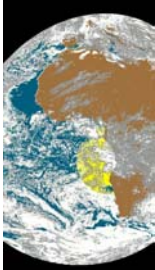
DATA DESCRIPTION	PARAMETERS	ACCESS MEANS
<p>Abbreviation: TOVS Long Name: TIROS Operational Vertical Sounder Common Uses: measures vertical distribution of temperature and moisture in the atmosphere</p>	<p>Temporal: 1978 - present Spatial: global Resolution: 250km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://www.saa.noaa.gov/ Sample:</p>  <p>Global Water Vapor</p>
<p>Abbreviation: Radiation Budget Long Name: - none Common Uses:</p> <ul style="list-style-type: none"> • climate • climate change 	<p>Temporal: 1974 - present Spatial: global Resolution: 50 km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://www.saa.noaa.gov/ Sample:</p>  <p>Global Longwave Radiation</p>
<p>Abbreviation: SUBV/2 Long Name: Solar Backscatter Ultraviolet Radiometer/2 Common Uses: monitors density and distribution of ozone in the Earth's atmosphere from 6 to 30 miles</p>	<p>Temporal: 1984 - present Spatial: global Resolution: 11 degrees</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://www.saa.noaa.gov/ Sample:</p>  <p>Total Atmospheric Ozone in the Northern Hemisphere</p>

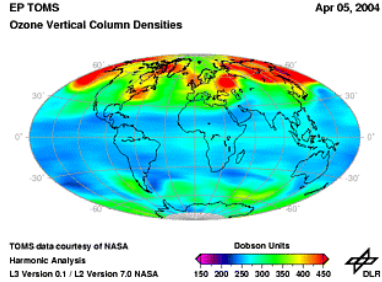
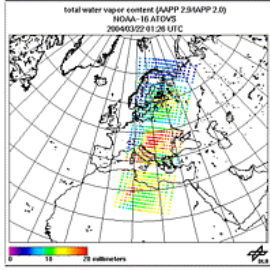
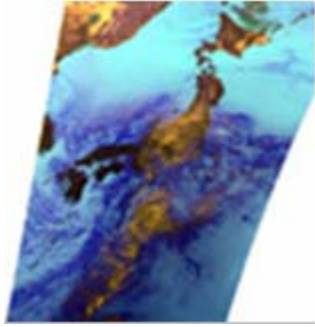
<p>Abbreviation: DMSP-SSM/I Long Name: Defense Satellite Program - Special Sensor Microwave Imager Common Uses:</p> <ul style="list-style-type: none"> • atmospheric precipitable water • ocean surface wind speed • sea ice concentration 	<p>Temporal: 1987 - present Spatial: global Resolution: 12.5 to 25km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://dmsp.ngdc.noaa.gov/html/download.html Sample:</p>  <p>Atmospheric Water Vapor</p>
<p>Abbreviation: DMSP-OLS Long Name: Defense Satellite Program - Operational Linescan System Common Uses: monitors the global distribution of clouds and cloud top temperatures</p>	<p>Temporal: 1992 - present Spatial: global Resolution: 0.5 - 1.0 km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://dmsp.ngdc.noaa.gov/html/download.html Sample:</p>  <p>Hurricane approaching U.S.</p>
<p>Abbreviation: DMSP-SSM/T Long Name: Defense Satellite Program - Atmospheric Temperature Profiler Common Uses: atmospheric and temperature profiler</p>	<p>Temporal: 1992 - present Spatial: global Resolution: 250 - 450 km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://dmsp.ngdc.noaa.gov/html/download.html Sample:</p>  <p>SSM/T for Hurricane Zelda</p>
<p>Abbreviation: GOES Long Name: Geostationary Operational Environmental Satellite Common Uses:</p> <ul style="list-style-type: none"> • weather forecasting • prediction of thunderstorms • flash floods • hurricanes • other severe weather 	<p>Temporal: 1975 - present Spatial: Western Hemisphere Resolution: 1 - 8 km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://www.saa.noaa.gov/ Sample:</p>  <p>Western US - Infrared Channel 4</p>

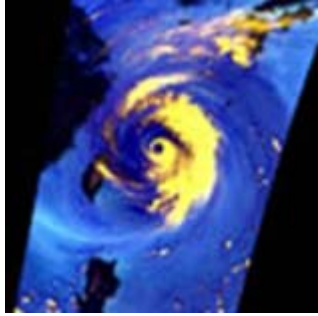
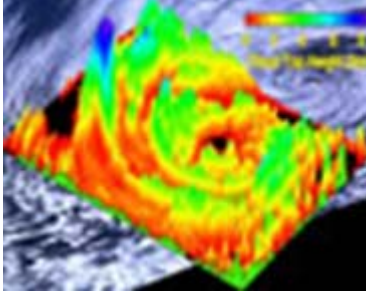
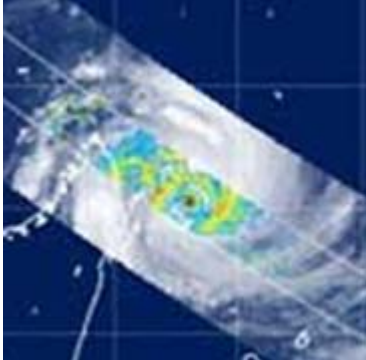
<p>Abbreviation: NOAA AVHRR Long Name: NOAA Advanced Very High Resolution Radiometer Common Uses:</p> <ul style="list-style-type: none"> • investigation of clouds • land-water boundaries • snow and ice extent • ice or snow melt inception • day and night cloud distribution • temperatures of radiating surfaces • sea surface temperature 	<p>Temporal: 1983 - present Spatial: Canada Resolution: 0.5km – 1km</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 
<p>Abbreviation: ERS GOME Long Name: ERS-2 Global Ozone Monitoring Experiment Common Uses:</p> <ul style="list-style-type: none"> • atmosphere's content of ozone • nitrogen dioxide • water vapor • oxygen/oxygen dimmer • bromine oxide and other trace gases 	<p>Temporal: 1995 - present Spatial: global Resolution: 5-10km vertical and 320-960km horizontal</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html URL: http://earth.esa.int/helpandmail/help_order.html/ Sample:</p>  <p>DLR L3 Ozone Total column</p>
<p>Abbreviation: ENVISAT GOMOS Long Name: ENVISAT Global Ozone Monitoring by Occultation of Stars Common Uses:</p> <ul style="list-style-type: none"> • monitoring of ozone and other trace gases • aerosol and temperature distributions in the stratosphere 	<p>Temporal: 2002 - present Spatial: global Resolution: 1.7km vertical resolution</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html URL: http://earth.esa.int/helpandmail/help_order.html/ Sample:</p>  <p>GOMOS occultation, May 2002</p>
<p>Abbreviation: ENVISAT MIPAS Long Name: ENVISAT Michelson Interferometer for Passive Atmospheric Sounding Common Uses:</p> <ul style="list-style-type: none"> • stratospheric chemistry • global climatology • atmospheric dynamics • upper tropospheric chemistry 	<p>Temporal: 2002 - present Spatial: global Resolution: 3km vertical resolution</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html URL: http://earth.esa.int/helpandmail/help_order.html/ Sample:</p>  <p>MIPAS temperature profile, April 2002</p>

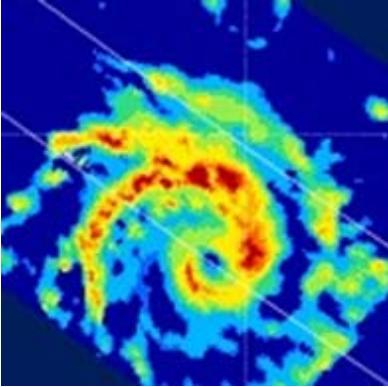
<p>Abbreviation: NOAA AVHRR Long Name: NOAA Advanced Very High Resolution Radiometer Common Uses:</p> <ul style="list-style-type: none"> • investigation of clouds • land-water boundaries • snow and ice extent • ice or snow melt inception • day and night cloud distribution • temperatures of radiating surfaces • sea surface temperature 	<p>Temporal: 1996 - present Spatial: South America Resolution: 0.5km – 1km</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.cptec.inpe.br/ Sample:</p>  <p>Brazil</p>
<p>Abbreviation: MODIS Long Name: Moderate Resolution Imaging Spectroradiometer Common Uses: terrestrial, atmospheric, and ocean phenomenology for a wide and diverse community of users throughout the world</p>	<p>Temporal: 2002 - present Spatial: South America Resolution: 250, 500 & 1000 meters</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.cptec.inpe.br/ Sample:</p> 
<p>Abbreviation: Odin SMR Long Name: Odin Sub-mm radiometer Common Uses:</p> <ul style="list-style-type: none"> • stratospheric chemistry • global climatology • atmospheric dynamics 	<p>Temporal: 2001 - present Spatial: global Resolution: 1.5 - 3km vertical resolution</p>	<p>Agency: Swedish National Space Board (SNSB), CSA, CNES, TEKES URL: http://www.ssc.se/ssd/ssat/odin.html Sample:</p> 
<p>Abbreviation: Odin OSIRIS Long Name: Odin Optical Spectrograph and Infra-Red Imaging System Common Uses:</p> <ul style="list-style-type: none"> • stratospheric chemistry • global climatology • atmospheric dynamics 	<p>Temporal: 2001 - present Spatial: global Resolution: 1.5 - 3km vertical resolution</p>	<p>Agency: : Swedish National Space Board (SNSB), CSA, CNES, TEKES URL: http://osirus.usask.ca/ Sample:</p>  <p>Ozone Height Profile</p>

<p>Abbreviation: POLDER Long Name: POLARization and Directionality of the Earth's Reflectances Common Uses:</p> <ul style="list-style-type: none"> • Aerosols • Earth Radiation Budget • Water vapor • Clouds • Land surfaces • Ocean Color 	<p>Temporal: 1996-2003 Spatial: global Resolution: 6x7 km at nadir (swath: 2400 km)</p>	<p>Agency: CNES URL: http://smc.cnes.fr/POLDER/index.htm Sample:</p>  <p style="text-align: center;">Madagascar</p>
<p>Abbreviation: ODIN Long Name: ODIN Common Uses:</p> <ul style="list-style-type: none"> • Atmospheric chemistry • observation of O₃, ClO, N₂O, HNO₃, H₂O, H₂O₂ molecules spectral lines 	<p>Temporal: 1991 - 2002 Spatial: global Resolution: 1.5 – 3km vertical resolution</p>	<p>Agency: IPSL / CNES URL: http://ether.ipsl.jussieu.fr Sample:</p> 
<p>Abbreviation: ERS GOME Long Name: ERS-2 Global Ozone Monitoring Experiment Common Uses: value-added global products from GOME, covering ozone, nitrogen, halogen, sulfur, hydrogen and carbon-containing compounds</p>	<p>Temporal: 1995 - present Spatial: global Resolution: vertical: 1,3 km; horizontal 2,7 by 2,3 deg</p>	<p>Agency: German Aerospace Center (DLR), World Data Center URL: http://wdc.dlr.de/index.html Sample:</p> <p>Ozone Volume Mixing Ratio at 56 hPa 3D CTM ROSE Sep 17, 2003 Southern Hemisphere</p>  <p>UKMO Analysis / Assimilated GOME O3 Version 1.0 / Preliminary</p> <p style="text-align: right;">ppm(v) 0 1 2 3</p> 

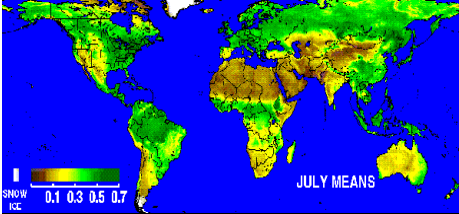

<p>Abbreviation: ENVISAT SCIAMACHY Long Name: Scanning Imaging Absorption Spectrometer for Atmospheric Chemistry Common Uses: extracting composition, dynamics and radiation balance of the atmosphere, specifically O₃ and NO₂, aerosols, HNO₃, N₂O, CH₄</p>	<p>Temporal: 2002 - present Spatial: global Resolution: vertical: 1,3 km; horizontal 2,7 by 2,3 deg</p>	<p>Agency: German Aerospace Center (DLR), World Data Center URL: http://wdc.dlr.de/index.html Sample:</p> 
<p>Abbreviation: ENVISAT MIPAS Long Name: Michelson Interferometer for Passive Atmospheric Sounding Common Uses: global composites of O₃, N₂O, HNO₃, CH₄, NO₂</p>	<p>Temporal: 2002 - present Spatial: global Resolution: vertical: 1,3 km; horizontal 2,7 by 2,3 deg</p>	<p>Agency: German Aerospace Center (DLR), World Data Center URL: http://wdc.dlr.de/index.html Sample:</p> 
<p>Abbreviation: NOAA - AVHRR Long Name: Advanced Very High Resolution Radiometer Common Uses: cloud physical parameters</p>	<p>Temporal: 1986 - present Spatial: Europe Resolution: 1km</p>	<p>Agency: German Aerospace Center (DLR), World Data Center URL: http://eoweb.dlr.de Sample:</p> 
<p>Abbreviation: MSG SEVIRI Long Name: Spinning Enhanced Visible and Infrared Imager Common Uses: cloud physical parameters</p>	<p>Temporal: 2004 - present Spatial: Europe & Africa Resolution: 4km</p>	<p>Agency: German Aerospace Center (DLR), World Data Center URL: http://wdc.dlr.de/index.html Sample:</p> 



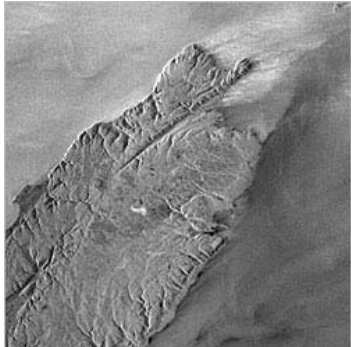
<p>Abbreviation: NOAA - TOMS Long Name: Total Ozone Mapping Spectrometer Common Uses: assimilated global 3D ozone fields</p>	<p>Temporal: 1978 - present Spatial: global Resolution: vertical: 1,3 km; horizontal 2,7 by 2,3 deg</p>	<p>Agency: German Aerospace Center (DLR), World Data Center URL: http://wdc.dlr.de/index.html Sample:</p> 
<p>Abbreviation: NOAA ATOVS Long Name: Advanced TIROS Operational Vertical Sounder Common Uses: H₂O and temperature vertical profile</p>	<p>Temporal: 2001 - present Spatial: Europe Resolution: vertical: 3-6-km; horizontal: 50 by 50 km</p>	<p>Agency: German Aerospace Center (DLR), World Data Center URL: http://wdc.dlr.de/index.html Sample:</p> 
<p>Abbreviation: ADEOS-II AMSR Long Name: Advanced Earth Observing Satellite – II Advanced Microwave Scanning Radiometer Common Uses: water-related parameters such as water vapor, precipitation, soil moisture, and snow depth retrieved</p>	<p>Temporal: 2002 - 2003 Spatial: global Resolution: 5 to 25km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>Rainfall region associated with a developing cyclone</p>





<p>Abbreviation: Aqua AMSR-E Long Name: Advanced Microwave Scanning Radiometer for EOS Common Uses: various geophysical parameters, including;</p> <ul style="list-style-type: none"> • water vapor • cloud liquid water • precipitation • sea surface temperature • sea surface wind speed • sea ice concentration • snow water equivalent • soil moisture 	<p>Temporal: 2002 - present Spatial: global Resolution: 5 to 25km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>Observation of Typhoon No.5 by AMSR-E aboard the Aqua satellite</p>
<p>Abbreviation: ADEOS-II GLI Long Name: Advanced Earth Observing Satellite – II Global Imager Common Uses: an optical sensor to observe globally and frequently the reflected solar radiation from the earth's surface including land, ocean, and cloud or the infrared radiation for measuring the physical content such as chlorophyll, dissolved organic substance, surface temperature, vegetation distribution, vegetation biomass, distribution of snow and ice, and albedo of snow and ice, etc.</p>	<p>Temporal: 2002 - 2003 Spatial: Global Resolution: 250m and 1km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>3D structure of a cloud system from GLI data analysis</p>
<p>Abbreviation: TRMM PR Long Name: Tropical Rainfall Measuring Mission, Precipitation Radar Common Uses: provides 3-dimensional rainfall structure, quantitative rainfall measurement over land as well as the oceans, improves the accuracy of TRMM Microwave Imager (TMI) measurement by providing the rain structure information</p>	<p>Temporal: 1997 - present Spatial: tropical region 0 – 33 degree latitude north and south Resolution: 250km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM/typhoon/index_e.htm Sample:</p>  <p>Tropical Cyclone GAFILO</p>


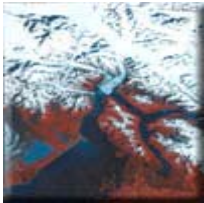
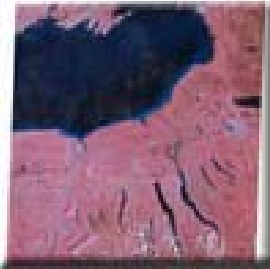

<p>Abbreviation: TRMM TMI Long Name: Tropical Rainfall Measuring Mission, TRMM Microwave Imager Common Uses: data related to rainfall rates over the oceans combined with PR</p>	<p>Temporal: 1997 - present Spatial: tropical region (0 – 33 degree latitude north and south) Resolution: 6-50km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM/typhoon/index_e.htm Sample:</p>  <p>Tropical Cyclone GAFILO</p>
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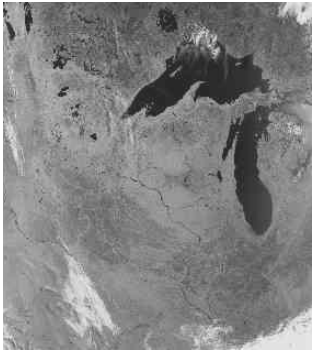
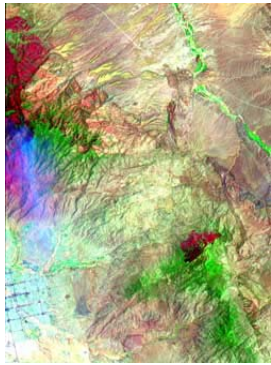
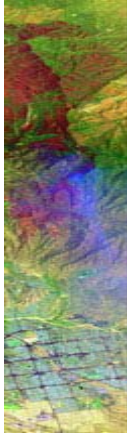
1.2. Terrestrial Data


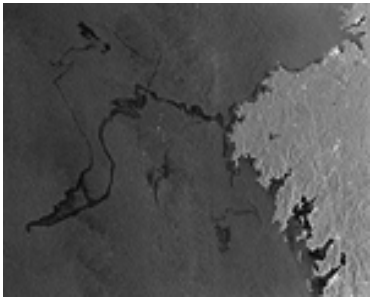
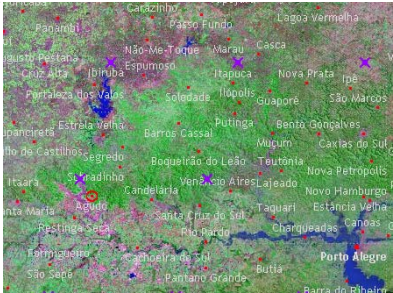
DATA DESCRIPTION	PARAMETERS	ACCESS MEANS
<p>Abbreviation: GVI Long Name: Global Vegetation Index Common Uses:</p> <ul style="list-style-type: none"> • global change research • agriculture • forestry • resource management 	<p>Temporal: 1982 - present Spatial: global Resolution: 1 - 16 km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://www.saa.noaa.gov/ Sample:</p>  <p>Global NDVI 5-Year Climatology</p>
<p>Abbreviation: DMSP/OLS Night Time lights Long Name: Defense Satellite Program - Operational Linescan System Night Time Lights Common Uses: Monitors lights from cities, towns, industrial sites, gas flares, and ephemeral events such as fires and lightning-illuminated clouds. Used for change detection</p>	<p>Temporal: 1992 - present Spatial: global Resolution: 0.5 - 1.0 km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://dmsp.ngdc.noaa.gov/html/download.html Sample :</p>  <p>Nighttime lights of the U.S.</p>

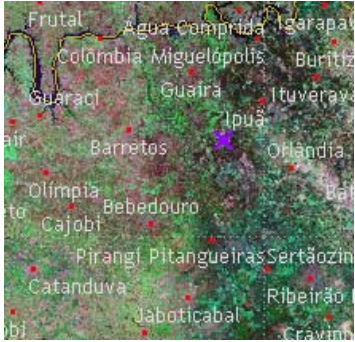
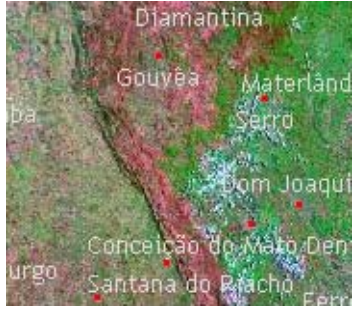

<p>Abbreviation: SPOT 2/4/5 Long Name: Systemme pour l'Observation de la Terre Common Uses:</p> <ul style="list-style-type: none"> • cartography • cadastral mapping • defence • intelligence • security agriculture • forestry • land planning and management • maritime applications • telecoms • energy 	<p>Temporal: 1986 - 2001 Spatial: Canada Resolution: 10 and 20m</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 
<p>Abbreviation: NOAA AVHRR Long Name: NOAA Advanced Very High Resolution Radiometer Common Uses: investigates</p> <ul style="list-style-type: none"> • Clouds • land-water boundaries • snow and ice extent • ice or snow melt inception • day and night cloud distribution • temperatures of radiating surfaces • sea surface temperature 	<p>Temporal: 1983 - present Spatial: Canada Resolution: 0.5km – 1km</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 
<p>Abbreviation: Radarsat Long Name: Radarsat Common Uses: environmental change and support to resource sustainability</p>	<p>Temporal: 1995 - present Spatial: Canada Resolution: 8-100m</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 




<p>Abbreviation: ERS Long Name: European Remote Sensing Common Uses:</p> <ul style="list-style-type: none"> ice mapping and monitoring ocean and coastal areas imaging (e.g. oil spill monitoring) land imaging (e.g. floods) <p>DEM interferometry (small surface movements caused by landslides, earthquakes)</p>	<p>Temporal: 1992 - present Spatial: Canada Resolution: 30m and less</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 
<p>Abbreviation: Landsat ETM+ Long Name: Enhanced Thematic Mapper Plus Common Uses:</p> <ul style="list-style-type: none"> global change research agriculture forestry geology resource management geography mapping water quality 	<p>Temporal: 1999 - present Spatial: Canada Resolution: 30m and 60m</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 
<p>Abbreviation: Landsat TM Long Name: Landsat Thematic Mapper Common Uses:</p> <ul style="list-style-type: none"> global change research agriculture forestry geology resource management geography mapping water quality 	<p>Temporal: 1982 - 1999 Spatial: Canada Resolution: 30m</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 
<p>Abbreviation: Landsat MSS Long Name: Landsat Multi Spectral Scanner Common Uses:</p> <ul style="list-style-type: none"> global change research agriculture forestry geology resource management geography mapping water quality 	<p>Temporal: 1972 - 1999 Spatial: Canada Resolution: 80m</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 


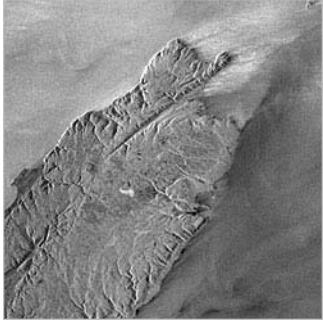

<p>Abbreviation: Landsat ETM+ Long Name: Landsat Enhanced Thematic Mapper Plus</p> <ul style="list-style-type: none"> • Common Uses: global change research • agriculture • forestry • geology • resource management • geography • mapping • water quality 	<p>Temporal: 1999 - present Spatial: global Resolution: 15 and 30m</p>	<p>Agency: U.S. Geological Survey URL: http://landsat7.usgs.gov/index.php Sample:</p>  <p>Lena Delta</p>
<p>Abbreviation: Landsat TM Long Name: Landsat Thematic Mapper</p> <ul style="list-style-type: none"> • Common Uses: global change research • agriculture • forestry • geology • resource management • geography • mapping • water quality 	<p>Temporal: 1982 - present Spatial: global Resolution: 30m</p>	<p>Agency: U.S. Geological Survey URL: http://earthexplorer.usgs.gov/EarthExplorer/ Sample:</p>  <p>Hubbard Glacier</p>
<p>Abbreviation: Landsat MSS Long Name: Landsat Multispectral Scanner</p> <ul style="list-style-type: none"> • Common Uses: global change research • agriculture • forestry • geology • resource management • geography • mapping • water quality 	<p>Temporal: 1972-1992 Spatial: global Resolution: 80m</p>	<p>Agency: U.S. Geological Survey URL: http://earthexplorer.usgs.gov/EarthExplorer/ Sample:</p>  <p>Finger Lakes</p>
<p>Abbreviation: Declass Long Name: Declassified Satellite Imagery Common Uses:</p> <ul style="list-style-type: none"> • earth science studies • agriculture • geography 	<p>Temporal: 1959 - 1980 Spatial: global Resolution: 2 – 153m</p>	<p>Agency: U.S. Geological Survey URL: http://earthexplorer.usgs.gov/EarthExplorer/ Sample:</p>  <p>Eiffel Tower</p>


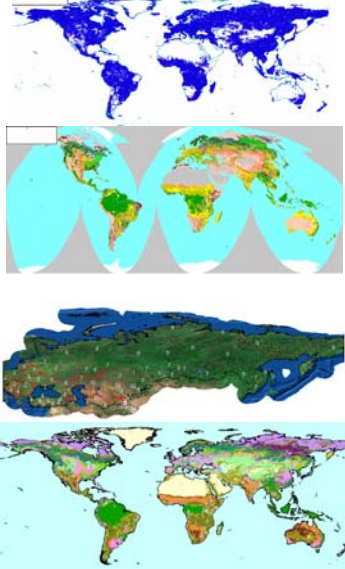
<p>Abbreviation: NOAA AVHRR Long Name: NOAA Advanced Very High Resolution Radiometer Common Uses: investigates Clouds</p> <ul style="list-style-type: none"> • land-water boundaries • snow and ice extent • ice or snow melt inception • day and night cloud distribution • temperatures of radiating surfaces • sea surface temperature 	<p>Temporal: 1987 - present Spatial: global Resolution: 1.1km</p>	<p>Agency: U.S. Geological Survey URL: http://earthexplorer.cr.usgs.gov/EarthExplorer/ Sample:</p>  <p style="text-align: center;">Great Lakes</p>
<p>Abbreviation: EO-1 ALI Long Name: Earth Observing-1 Advanced Land Imager Common Uses: land imaging</p>	<p>Temporal: 2000 - present Spatial: global Resolution: 10m and 30m</p>	<p>Agency: U.S. Geological Survey URL: http://earthexplorer.usgs.gov/EarthExplorer/ Sample:</p>  <p style="text-align: center;">Arizona</p>
<p>Abbreviation: EO-1 Hyperion Long Name: Earth Observing-1 Hyperion Common Uses: land surface properties</p>	<p>Temporal: 2000 - present Spatial: global Resolution: 30m</p>	<p>Agency: U.S. Geological Survey URL: http://earthexplorer.usgs.gov/EarthExplorer/ Sample:</p>  <p style="text-align: center;">Arizona</p>

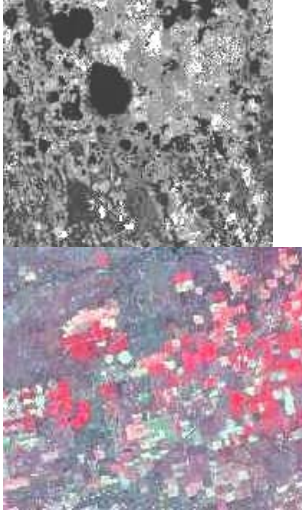


<p>Abbreviation: ERS SAR Long Name: ERS-1 & 2 Synthetic Aperture Radar Image Mode Common Uses:</p> <ul style="list-style-type: none"> ice mapping and monitoring ocean and coastal areas imaging (e.g. oil spill monitoring) land imaging (e.g. floods) DEM - interferometry (small surface movements caused by landslides, earthquakes) 	<p>Temporal: 1991 - present Spatial: mainly Europe Resolution: along track less than or equal to 30m; across track less than or equal to 26.3m</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html URL: http://earth.esa.int/helpandmail/help_order.html Sample:</p>  <p>Lisbon (Portugal), ERS-2 Sep. 2001</p>
<p>Abbreviation: ENVISAT ASAR Long Name: ENVISAT Advanced Synthetic Aperture Radar Common Uses:</p> <ul style="list-style-type: none"> ocean wave characteristics ocean mesoscale features sea ice extent and motion snow and ice sheet extent surface topography land surface properties surface soil moisture and wetland extent deforestation and extent of desert areas disaster monitoring (flooding, earthquake, oil spills) 	<p>Temporal: 2002 - present Spatial: global Resolution: from 30m</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html URL: http://earth.esa.int/helpandmail/help_order.html Sample:</p>  <p>Oil Spill near Spain (Dec. 2002)</p>
<p>Abbreviation: CBERS CCD Long Name: CCD - High Resolution CCD Cameras Common Uses:</p> <ul style="list-style-type: none"> forestry agriculture global change research water quality 	<p>Temporal: 1999 - present Spatial: South America and Global Resolution: 20m.</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.inpe.br or http://www.obt.inpe.br/catalogo/ Sample:</p>  <p>Agudo (RS)</p>

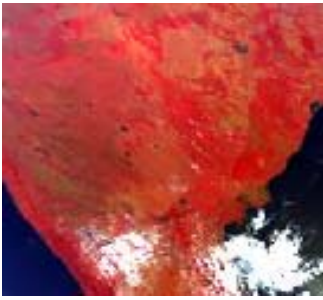

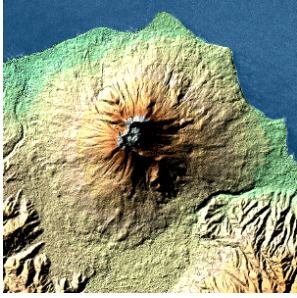
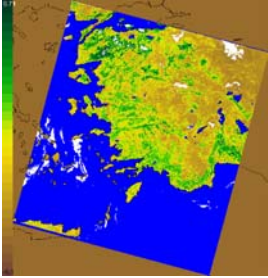
<p>Abbreviation: CBERS IRMSS Long Name: IRMSS - Infra-Red Multispectral Scanner Camera Common Uses:</p> <ul style="list-style-type: none"> • forestry • agriculture • global change research • water quality 	<p>Temporal: 1999 - present Spatial: South America Resolution: 80m.</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.inpe.br or http://www.obt.inpe.br/catalogo Sample:</p>  <p style="text-align: center;">Itaju (SP)</p>
<p>Abbreviation: CBERS WFI Long Name: WFI - Wide Field Imager Camera Common Uses: ground swath of 890km which provides a synoptic view the Earth surface each 3 days.</p>	<p>Temporal: 1999 - present Spatial: South America Resolution: 260m.</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.inpe.br or http://www.obt.inpe.br/catalogo Sample:</p>  <p style="text-align: center;">Piuí (MG)</p>
<p>Abbreviation: Landsat MSS Long Name: Landsat Multispectral Scanner Common Uses:</p> <ul style="list-style-type: none"> • global change research • agriculture • forestry • geology • resource management • geography • mapping • water quality 	<p>Temporal: 1973-1984 Spatial: South America Resolution: 80m</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.dgi.inpe.br/catalogo/ (available at the end of 2004). Sample:</p>  <p style="text-align: center;">Brazil</p>



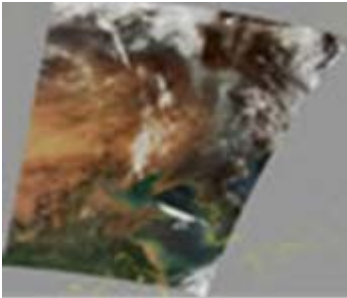
<p>Abbreviation: Landsat TM Long Name: Landsat Thematic Mapper Common Uses:</p> <ul style="list-style-type: none"> • global change research • agriculture • forestry • geology • resource management • geography • mapping • water quality 	<p>Temporal: 1984 - present Spatial: South America Resolution: 30m</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.dgi.inpe.br/catalogo/ Sample:</p>  <p style="text-align: center;">Brazil</p>
<p>Abbreviation: Landsat ETM+ Long Name: Landsat Enhanced Thematic Mapper Plus Common Uses:</p> <ul style="list-style-type: none"> • global change research • agriculture • forestry • geology • resource management • geography • mapping • water quality 	<p>Temporal: 1999 - 2003 Spatial: South America Resolution: 15 & 30m</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.dgi.inpe.br/catalogo/ Sample:</p>  <p style="text-align: center;">Brazil</p>
<p>Abbreviation: MODIS Long Name: Moderate Resolution Imaging Spectroradiometer Common Uses: unprecedented look at terrestrial, atmospheric, and ocean phenomenology for a wide and diverse community of users throughout the world</p>	<p>Temporal: 2002 - present Spatial: South America Resolution: 250, 500 & 1000 meters</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.cptec.inpe.br/ Sample:</p> 


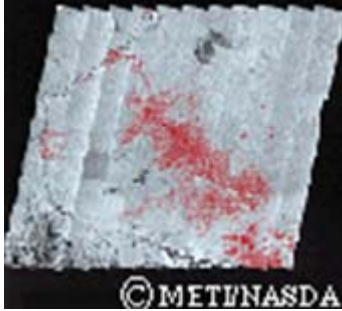
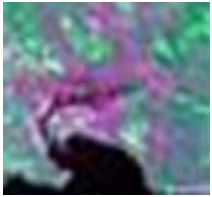
<p>Abbreviation: Landsat TM Long Name: LANDSAT 5,7 Thematic Mapper Common Uses: natural resource management</p>	<p>Temporal: 1987 – present Spatial: Regional Resolution: 30 m - Band 6 has resolution of 120 m</p>	<p>Agency: Geo-Informatics and Space Technology Development Agency (Public Organization) - GISTDA URL: http://www.gistda.or.th/ Sample:</p>  <p>Thailand</p>
<p>Abbreviation: Long Name: RADARSAT 1 Common Uses:</p> <ul style="list-style-type: none"> • natural hazard monitoring and mitigation • natural resource management 	<p>Temporal: 2000 - present Spatial: Regional Resolution: Standard 28 x 25 m Wide 28 x 25 m Fine 10 x 9 m Extended 20 x 28 m ScanSAR 50 x 50 m (narrow) ScanSAR 100 x 100 m (wide)</p>	<p>Agency: Geo-Informatics and Space Technology Development Agency (Public Organization) - GISTDA URL: http://www.gistda.or.th/ Sample:</p> 
<p>Abbreviation: Long Name: IRS 1 Common Uses:</p> <ul style="list-style-type: none"> • natural resource management • urban planning 	<p>Temporal: 2000 - present Spatial: Regional Resolution: PAN: 5.8m LISS III: 23.5m</p>	<p>Agency: Geo-Informatics and Space Technology Development Agency (Public Organization) - GISTDA URL: http://www.gistda.or.th/ Sample:</p>  <p>Tucson, AZ</p>

<p>Abbreviation: Long Name: IKONOS Common Uses:</p> <ul style="list-style-type: none"> • mapping • natural resource management 	<p>Temporal: 2003 - present Spatial: Resolution: 1m, 4m</p>	<p>Agency: Geo-Informatics and Space Technology Development Agency (Public Organization) - GISTDA URL: http://www.gistda.or.th/ Sample:</p>  <p>Cairo, Egypt</p>
<p>Abbreviation: FAO-GeoNetwork Long Name: FAO Spatial Information Infrastructure Common Uses: ISO, OGC standardized access to FAO spatial data and information; interoperability with other organizations within and outside UN system to support sustainable development, food security, forestry and fisheries</p>	<p>Temporal: variable Spatial resolution: various: 30m, 250m, 1km, 5 km (thematic maps and low/high resolution satellite imagery)</p>	<p>Agency: FAO of the UN URL: http://www.fao.org/geonetwork/ Sample:</p> 

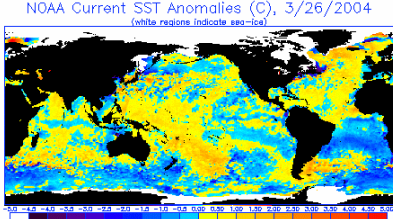
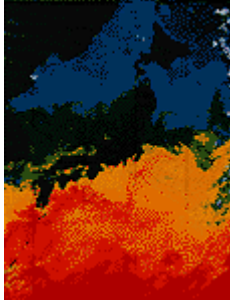
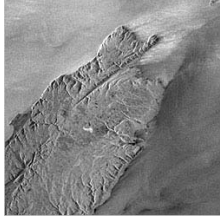

<p>Abbreviation: SPOT Long Name: SPOT Scenes Common Uses:</p> <ul style="list-style-type: none"> • geometric image processing, • photo-interpreting, • thematic studies, • making DEM from stereopairs 	<p>Temporal: 1986 - present Spatial : global Resolution: Black & white : 2.5m/5m/10m Color: 2.5m/5m/10m/20m (swath 60km)</p>	<p>Agency: SPOTIMAGE / CNES URL: http://www.spotimage.fr/ Sample:</p> 
<p>Abbreviation: SPOT 3D Long Name: SPOT Reference 3D Common Uses: applications that rely on very high quality elevation databases</p>	<p>Temporal: 1986 - present Spatial: global Resolution: a) DEM Sampling step: 1 second of arc. Absolute elevation accuracy: 10m. Absolute planimetric accuracy: 15mb) HRS orthoimages Absolute altimetric accuracy: 16m Sampling step: 1/6 second of arc</p>	<p>Agency: SPOTIMAGE / CNES URL: http://www.spotimage.fr/ Sample:</p>  <p style="text-align: center;">Dead Sea</p>
<p>Abbreviation: VEGETATION Long Name: VEGETATION Common Uses: continuous, regional and global monitoring of the continental biosphere for accurate measurements of the main vegetation coverage characteristics, particularly for agricultural production and the effects of deforestation. VEGETATION also provides information on the color of sea water, used for oceanography applications</p>	<p>Temporal: 1998 - present Spatial: global Resolution: 1km (swath 2200km)</p>	<p>Agency: SPOTIMAGE / CNES URL: http://www.spotimage.fr/ URL: http://www.vgt.vito.be Sample:</p> 

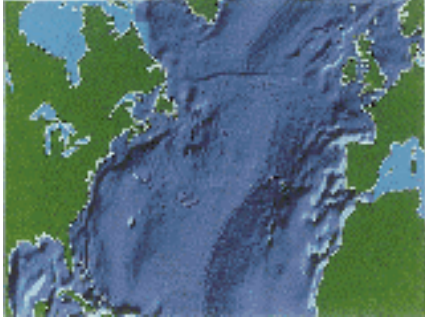
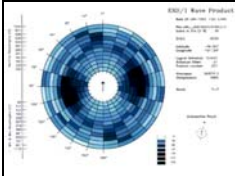
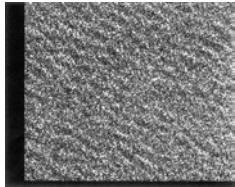
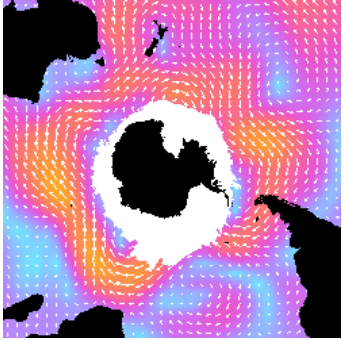
<p>Abbreviation: POLDER Long Name: POLarization and Directionality of the Earth's Reflectances Common Uses:</p> <ul style="list-style-type: none"> • Aerosols, • Earth radiation budget, Water vapor, clouds • Land surfaces • Ocean color 	<p>Temporal: 1996-2003 Spatial: global Resolution: 6x7km at nadir (swath: 2400km)</p>	<p>Agency: CNES URL: http://smc.cnes.fr/POLDER/index.htm Sample:</p>  <p style="text-align: center;">India</p>
<p>Abbreviation: NOAA AVHRR Long Name: Advanced Very High Resolution Radiometer Common Uses: NDVI (Normalized Differential Vegetation Index) & LST (Land Surface Temperature)</p>	<p>Temporal: 1994 - present Spatial: Europe Resolution: 1km daily</p>	<p>Agency: German Aerospace Center (DLR) URL: http://eoweb.dlr.de Sample:</p> 
<p>Abbreviation: SRTM, X-SAR Long Name: Shuttle Radar Topography Mission Common Uses: global digital land elevation data</p>	<p>Temporal: 2000 mission Spatial: global Resolution: 1" by 1" at 16-bit integer and 6m relative accuracy in height</p>	<p>Agency: German Aerospace Center (DLR) URL: http://www.caf.dlr.de/srtm/srtm.html Sample:</p> 
<p>Abbreviation: ENVISAT MERIS Long Name: Medium Resolution Imaging Spectrometer Common Uses: NDVI; land cover change</p>	<p>Temporal: 2004 - present Spatial: Europe Resolution: 300m</p>	<p>Agency: German Aerospace Center (DLR) URL: http://eoweb.dlr.de Sample:</p> 

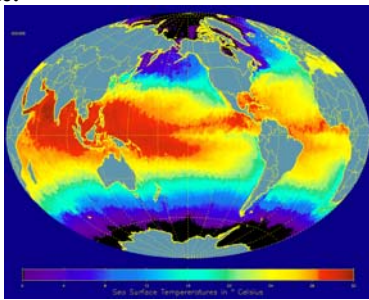

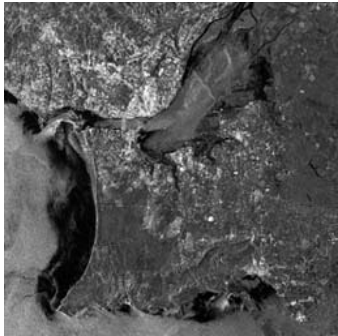
<p>Abbreviation: SAC-C MMRS Long Name: SAC-C Multispectral Medium Resolution Scanner Common Uses:</p> <ul style="list-style-type: none"> • land surface properties • global change research • agriculture • forestry • geology • resource management • geography and mapping • Disaster monitoring: fires, floods, landscape epidemiology 	<p>Temporal: 2000 - present Spatial: global Resolution: 175m</p>	<p>Agency: CONAE URL: http://ggt.conae.gov.ar/catalogo/index.htm Sample:</p> 
<p>Abbreviation: SAC-C HRTC Long Name: SAC-C High Resolution Technological Camera Common Uses: Improvement of SAC-C MMRS spatial resolution</p>	<p>Temporal: 2000 - present Spatial: global Resolution: 35m</p>	<p>Agency: CONAE URL: http://ggt.conae.gov.ar/catalogo/index.htm Sample:</p> 
<p>Abbreviation: ADEOS-II GLI Long Name: Advanced Earth Observing Satellite – II Global Imager Common Uses: an optical sensor to observe globally and frequently the reflected solar radiation from the earth's surface including land and ocean, a cloud or the infrared radiation for measuring the physical content such as chlorophyll, dissolved organic substance, surface temperature, vegetation distribution, vegetation biomass, distribution of snow and ice, and albedo of snow and ice, etc.</p>	<p>Temporal: 2002 - 2003 Spatial: global Resolution: 250m and 1km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>Continent prepares for early summer</p>

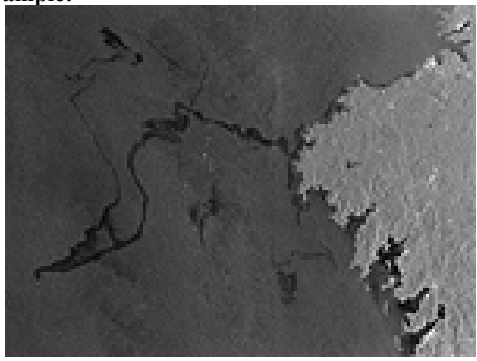


<p>Abbreviation: ADEOS AVNIR Long Name: Advanced Earth Observing Satellite, Advanced Visible Near Infrared Radiometer Common Uses: environmental awareness and monitoring of such phenomena as desertification, destruction of tropical forests, and pollution of coastal zones as well as for resource exploration, land use, etc.</p>	<p>Temporal: 1996 - 1997 Spatial: mainly Asia Resolution: 16m Multi, 8m Pan</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>TOKYO BAY AREA</p> <p>Tokyo Bay Area</p>
<p>Abbreviation: JERS-1 SAR Long Name: Japanese Earth Resources Satellite-1, Synthetic Aperture Radar Common Uses: high-resolution, high-contrast observation, and accurate determination of topographical features, such as undulations and slopes, independently of weather conditions, even during fog or cloud cover.</p>	<p>Temporal: 1992 - 1998 Spatial: mainly Asia, South America and Africa region Resolution: 18m x 18m</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>© METI/NASDA</p> <p>Amazon mosaic</p>
<p>Abbreviation: JERS-1 OPS Long Name: Japanese Earth Resources Satellite-1, Optical Sensor Common Uses:</p> <ul style="list-style-type: none"> • survey the earth resources • monitors sea status • obtains other information useful for improving our life 	<p>Temporal: 1992 - 1998 Spatial: mainly Asia, South America and Africa region Resolution: 18m x 18m</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>Melbourne, Australia</p>


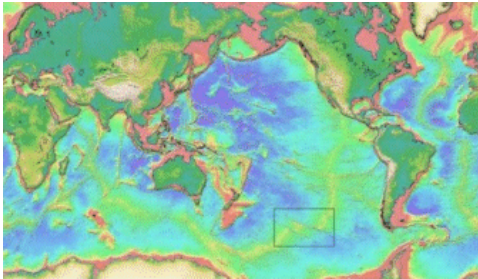
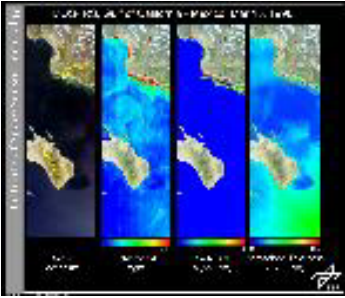
1.3. Oceanographic Data




DATA DESCRIPTION	PARAMETERS	ACCESS MEANS
<p>Abbreviation: SST Long Name: Sea Surface Temperature Common Uses:</p> <ul style="list-style-type: none"> • weather prediction • climate change 	<p>Temporal: 1985 - present Spatial: global Resolution: 8 km – 54km</p>	<p>Agency: NOAA/National Environmental Data and Information Service URL: http://www.saa.noaa.gov/ Sample:</p>  <p>NOAA Current SST Anomalies (C), 3/26/2004 <small>(white regions indicate sea-ice)</small></p> <p>Sea Surface Temperature</p>
<p>Abbreviation: MOS Long Name: Marine Observation Satellite Common Uses:</p> <ul style="list-style-type: none"> • natural resource utilization • environmental protection 	<p>Temporal: 1988 - 1993 Spatial: Canada Resolution: 50m</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p>  <p>Sea Surface Temperature 1990</p>
<p>Abbreviation: Radarsat Long Name: Radarsat Common Uses:</p> <ul style="list-style-type: none"> • environmental change • support to resource sustainability 	<p>Temporal: 1995 - present Spatial: Canada Resolution: 8-100m</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 
<p>Abbreviation: ERS Long Name: Common Uses:</p> <ul style="list-style-type: none"> • ice mapping and monitoring • ocean and coastal areas imaging (e.g. oil spill monitoring) • land imaging (e.g. floods) 	<p>Temporal: 1992 - present Spatial: Canada Resolution: 30m and less</p>	<p>Agency: CCRS URL: http://ceocat.ccrs.nrcan.gc.ca/ Sample:</p> 

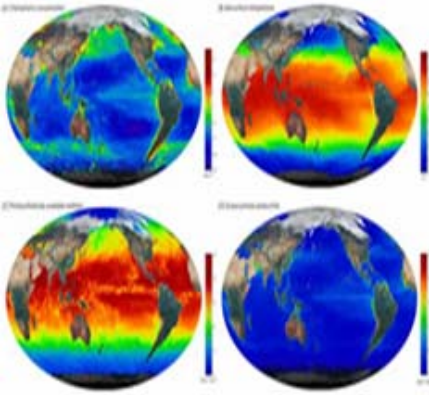
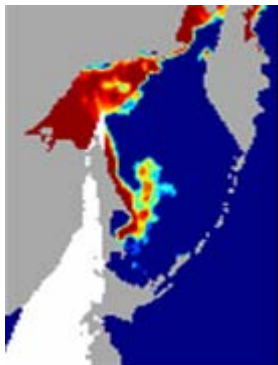
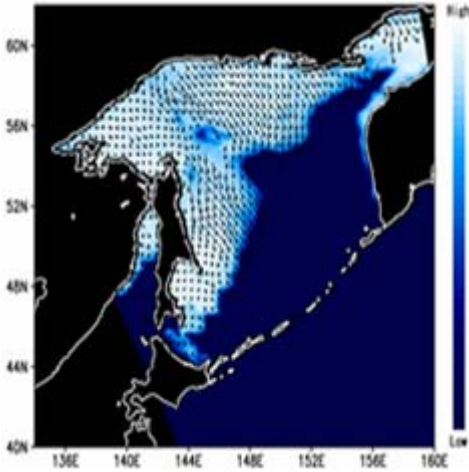
<p>Abbreviation: ERS RA and ENVISAT RA2</p> <p>Long Name: ERS-1 & 2 Radar Altimeter , ENVISAT Radar Altimeter 2</p> <p>Common Uses: Microwave sensor that provides information on ocean and ice e.g. significant wave height, surface wind speed, sea surface elevation, (which relates to ocean currents, the surface geoid and tides), various parameters over sea ice and ice sheets</p>	<p>Temporal: 1991 - 2002</p> <p>Spatial: global</p> <p>Resolution: n/a</p>	<p>Agency: European Space Agency</p> <p>URL: http://earth.esa.int/services/catalogues.html ,</p> <p>URL: http://earth.esa.int/helpandmail/help_order.html</p> <p>Sample:</p> 
<p>Abbreviation: ERS WAVE</p> <p>Long Name: ERS-1 & 2 SAR Wave Mode Data</p> <p>Common Uses:</p> <ul style="list-style-type: none"> • Oceanography (internal waves, small-scale variations in wind and modulations due to surface currents, etc.) • Glaciology • Climatology • meteorology (forecasts of sea conditions, etc.) • geodesy 	<p>Temporal: 1991 - present</p> <p>Spatial: global</p> <p>Resolution: 50km</p>	<p>Agency: European Space Agency</p> <p>URL: http://earth.esa.int/services/catalogues.html ,</p> <p>URL: http://earth.esa.int/helpandmail/help_order.html</p> <p>Sample:</p>  <p>ERS wave spectra</p>  <p>ERS wave imagerie</p>
<p>Abbreviation: ERS WS</p> <p>Long Name: ERS-1 & 2 Wind Scatterometer</p> <p>Common Uses: wind speed and direction at the ocean surface</p>	<p>Temporal: 1991 – present</p> <p>Spatial: global</p> <p>Resolution: 25km</p>	<p>Agency: European Space Agency</p> <p>URL: http://earth.esa.int/services/catalogues.html ,</p> <p>URL: http://earth.esa.int/helpandmail/help_order.html</p> <p>Sample:</p>  <p>Antarctica, Oct. 1992</p>

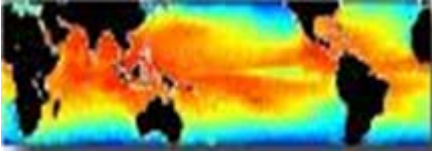
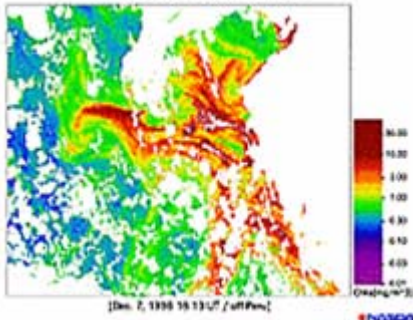
<p>Abbreviation: ERS ATSR Long Name: ERS-1 & 2 Along Track Scanning Radiometer Common Uses:</p> <ul style="list-style-type: none"> • Sea surface temperature • water vapour content of the atmosphere • observations of clouds • aerosols • haze • land-ice and sea-ice surface emissivity • tropospheric range correction of the Radar Altimeter measurements 	<p>Temporal: 1991 - present Spatial: global Resolution: km</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html , URL: http://earth.esa.int/helpandmail/help_order.html Sample:</p>  <p>ERS Monthly SST, June 2003</p>
<p>Abbreviation: ENVISAT MERIS Long Name: ENVISAT Medium Resolution Imaging Spectrometer Common Uses:</p> <ul style="list-style-type: none"> • ocean color data for the ocean carbon cycle • thermal regime of the upper ocean • management of fisheries • management of coastal zones 	<p>Temporal: 2002 - present Spatial: almost global Resolution: 250-1200m</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html , URL: http://earth.esa.int/helpandmail/help_order.html Sample:</p>  <p>MERIS, Caspian Sea, September 2003</p>
<p>Abbreviation: ERS SAR Long Name: ERS-1 & 2 Synthetic Aperture Radar Image Mode Common Uses:</p> <ul style="list-style-type: none"> • ice mapping and monitoring • ocean and coastal areas imaging (e.g. oil spill monitoring) • land imaging (e.g. floods) DEM - Interferometry (small surface movements caused by landslides, earthquakes) 	<p>Temporal: 1991 - present Spatial: mainly Europe Resolution: along track less than or equal to 30m; across track less than or equal to 26.3m</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html , URL: http://earth.esa.int/helpandmail/help_order.html Sample:</p>  <p>Lisbon (Portugal), ERS-2 September 2001</p>

<p>Abbreviation: ENVISAT ASAR Long Name: ENVISAT Advanced Synthetic Aperture Radar Common Uses:</p> <ul style="list-style-type: none"> ocean wave characteristics, ocean mesoscale features sea ice extent and motion snow and ice sheet extent surface topography land surface properties surface soil moisture wetland extent deforestation and extent of desert areas disaster monitoring (flooding, earthquake, oil spills) 	<p>Temporal: 2002 – present Spatial: global Resolution: from 30m depending on instrument mode</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html , URL: http://earth.esa.int/helpandmail/help_order.html Sample:</p>  <p>Oil Spill near Spain (Dec. 2002)</p>
<p>Abbreviation: ENVISAT AATSR Long Name: ENVISAT Advanced Along Track Scanning Radiometer Common Uses:</p> <ul style="list-style-type: none"> sea surface temperature vegetation biomass vegetation moisture vegetation and growth stage 	<p>Temporal: 2002 - present Spatial: global Resolution: 1km</p>	<p>Agency: European Space Agency URL: http://earth.esa.int/services/catalogues.html URL: http://earth.esa.int/helpandmail/help_order.html Sample:</p>  <p>AATSR - California Fires, Oct 2003</p>
<p>Abbreviation: MODIS Long Name: Moderate Resolution Imaging Spectroradiometer Common Uses: terrestrial, atmospheric, and ocean phenomenology for a wide and diverse community of users throughout the world.</p>	<p>Temporal: 2002 - present Spatial: South America Resolution: 250, 500 & 1000m</p>	<p>Agency: National Institute for Space Research - INPE URL: http://www.cptec.inpe.br/ Sample:</p> 

<p>Abbreviation: POLDER Long Name: POLarization and Directionality of the Earth's Reflectances Common Uses:</p> <ul style="list-style-type: none"> • Aerosols, • Earth radiation budget, water vapor, clouds • Land surfaces • Ocean color 	<p>Temporal: 1996 - 2003 Spatial: global Resolution: 6x7km at nadir (swath: 2400 km)</p>	<p>Agency: CNES URL: http://smc.cnes.fr/POLDER/index.htm Sample:</p>  <p>Mediterranean Basin</p>
<p>Abbreviation: AVISO Long Name: Archiving, Validation and Interpretation of Satellite Oceanographic data Common Uses:</p> <ul style="list-style-type: none"> • Forecasting the ocean • Marine tides • Level of oceans, enclosed seas and lakes, hydrology • Ocean circulation • Geophysics • Geodesy • Marine meteorology and atmospheric studies • Climate previsions • El Niño • Ice over seas and lands • Ocean seasons • Ocean's hot news 	<p>Temporal: 1991-present Spatial: global Resolution: variable</p>	<p>Agency: CLS / CNES URL: http://aviso.cls.fr/ Sample:</p> 
<p>Abbreviation: IRS-P3 MOS Long Name: Modular Optoelectronic Scanner Common Uses:</p> <ul style="list-style-type: none"> • Ocean color • land mapping • atmospheric composition/aerosols 	<p>Temporal: 1996 - present Spatial: selected regional at reception stations Resolution: 500m</p>	<p>Agency: German Aerospace Center (DLR) URL: http://eoweb.dlr.de Sample:</p> 

<p>Abbreviation: NOAA AVHRR Long Name: Advanced Very High Resolution Radiometer Common Uses: SST (Sea Surface Temperature)</p>	<p>Temporal: 1994 - present Spatial: European seas and oceans Resolution: 1km</p>	<p>Agency: German Aerospace Center (DLR) URL: http://eoweb.dlr.de Sample:</p> 
<p>Abbreviation: SAC-C MMRS Long Name: SAC-C Multispectral Medium Resolution Scanner Common Uses:</p> <ul style="list-style-type: none"> • Coastal and oceanographic studies • ocean color • Disaster monitoring: oil spills 	<p>Temporal: 2000 - present Spatial: global Resolution: 175m</p>	<p>Agency: CONAE URL: http://ggt.conae.gov.ar/catalogo/index.htm Sample:</p> 
<p>Abbreviation: SAC-C HRTC Long Name: SAC-C High Resolution Technological Camera Common Uses: Improvement of SAC-C MMRS spatial resolution.</p>	<p>Temporal: 2000 - present Spatial: global Resolution: 35m</p>	<p>Agency: CONAE URL: http://ggt.conae.gov.ar/catalogo/index.htm Sample:</p> 

<p>Abbreviation: ADEOS-II GLI Long Name: Advanced Earth Observing Satellite – II Global Imager Common Uses: an optical sensor aiming at observing globally and frequently the reflected solar radiation from the earth's surface including land and ocean, cloud or the infrared radiation for measuring the physical content such as chlorophyll, dissolved organic substance, surface temperature, vegetation distribution, vegetation biomass, distribution of snow and ice, and albedo of snow and ice, etc.</p>	<p>Temporal: 2002 - 2003 Spatial: global Resolution: 250m and 1km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>ADEOS-II GLI monthly ocean products April 2003</p>
<p>Abbreviation: Aqua AMSR-E Long Name: Advanced Microwave Scanning Radiometer for EOS Common Uses: Various geophysical parameters, including;</p> <ul style="list-style-type: none"> • water vapor • cloud liquid water • precipitation • sea surface temperature • sea surface wind speed • sea ice concentration • snow water equivalent • soil moisture 	<p>Temporal: 2002 - present Spatial: global Resolution: 5 to 25km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>Sea Ice Distribution in the Sea of Okhotsk</p>
<p>Abbreviation: ADEOS-II AMSR Long Name: Advanced Earth Observing Satellite – II Advanced Microwave Scanning Radiometer Common Uses: water-related parameters such as;</p> <ul style="list-style-type: none"> • water vapor • precipitation • soil moisture • snow depth retrieved 	<p>Temporal: 2002 - 2003 Spatial: global Resolution: 5 to 25km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>Sea ice distribution and motion vector</p>

<p>Abbreviation: TRMM TMI Long Name: Tropical Rainfall Measuring Mission, TRMM Microwave Imager Common Uses: data related to rainfall rates over the oceans combined with PR</p>	<p>Temporal: 1997 - present Spatial: tropical region (0 to 33 degree latitude north and south) Resolution: 6-50km</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM/index_e.htm Sample:</p>  <p>Tropical Region Sea Surface Temperature</p>
<p>Abbreviation: ADEOS OCTS Long Name: Advanced Earth Observing Satellite, Ocean Color and Temperature Scanner Common Uses:</p> <ul style="list-style-type: none"> determines ocean primary production carbon cycle ocean conditions for fishery environmental monitoring 	<p>Temporal: 1996 - 1997 Spatial: Global Resolution: Maximum 700m</p>	<p>Agency: JAXA Earth Observation Research and Application Center (EORC) URL: http://www.eorc.jaxa.jp/TRMM Sample:</p>  <p>Chlorophyll-a offshore of Peru</p>

2. CONCLUSIONS

The civil government agencies and non-governmental organizations that comprise CEOS provide vast amounts of satellite data supporting environmental projects ranging from small tracts of land to entire ocean basins. Discovering these diverse holdings can often be challenging. This paper identifies and briefly describes atmospheric, terrestrial and oceanographic sources created from satellites and provides links for interested researchers to obtain data that may satisfy their project needs.

3. REFERENCES

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- Improving Utilization of Earth Observation Satellite Data: Decisions of the 17th CEOS Plenary on Satellite Data Utilization, Boulder, CO, USA, December 2003. <http://www.ceos.org/utilization>

4. SOURCES

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- Centre National d'Etudes Spatiales (CNES) http://www.cnes.fr/WEB_UK/index.htm

- Comision Nacional de Actividades Espaciales (CONAE) <http://www.conae.gov.ar/principal.html>
- Duetsches Zentrum fur Luft- und Raumfahrt (DLR) http://www.dlr.de/dlr:internal&action=_setlanguage.action?LANGUAGE=e
- European Space Agency (ESA) <http://www.esa.int/export/esaCP/index.html>
- Geo-Informatics & Space Technology Development Agency (GISTDA) <http://www.gistda.or.th/Gistda/HtmlGistda/Html/EnIndexMain.html>
- Instituto Nacional de Pesquisas Espaciais (INPE) <http://www.inpe.br/english/>
- National Oceanic & Atmospheric Administration <http://www.noaa.gov/>
- Swedish National Space Board (SNSB) http://www.snsb.se/dyn_aktuell.asp?languageId=2
- United Nations Food and Agriculture Organization (FAO) <http://www.fao.org/>
- United States Geological Survey (USSGS) <http://www.usgs.gov/>