


A selection of software for processing geospatial data is presented in Table 1.1 and Table 1.2. Note that you may need some time to find the best software for a specific task or project.

Terminology:

Freeware: Freeware (a combination of the words "free" and "software") is software that is available for use at no cost or fee, but usually with one or more restricted usage rights. Compared the FOSS (see below) the source code is usually not published and hence the software can't be modified and adjusted by 3rd parties.



FOSS: Free and open-source software (F/OSS, FOSS) or free/libre/open-source software (FLOSS) is software that is both: **1)** free software and **2)** open source. It is licensed in the way that users are granted the right to use, copy, study, change, and improve its design through the availability of its source code.

| Free GIS software | Description |
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|  <p>Terra MA² Monitoring, Analysis and Alert www.dpi.inpe.br/terrama2/</p> | <p>Terra MA² (old SISM DEN) is a software product, a computational system, based on a Service Oriented Architecture (SOA), which provides the technological infrastructure required to develop operational systems for environmental risks monitoring and alert. TerraMA² provides services to gather updated data through internet and to add it to the alert system database; services to manipulate/analyze new data in real time and check if a risk situation exists by comparing with risk maps or a defined model; services to execute/edit/create new risk and alert models; services to create and notify alerts to system users; and other basic and advanced services.</p> |
| <p>GRASS Geographic Resources Analysis http://grass.fbk.eu/</p> | <p>Software for geospatial data management, analysis, image processing, map production, spatial modelling, and visualization. GRASS is currently used in academic and commercial settings around the world. GRASS is a project of the Open Source Geospatial Foundation.</p> |
| <p>gvSIG http://www.gvsig.org/web/</p> | <p>gvSIG is a desktop application designed for capturing, storing, handling, analyzing and deploying any kind of referenced geographic information in order to solve complex management and planning problems.</p> |
|  <p>ILWIS Integrated Land & Water Information System http://www.ilwis.org/ http://52north.org/downloads/ilwis</p> | <p>ILWIS (Integrated Land & Water Information System) is software for vector and raster processing. ILWIS features include digitizing, editing, analysis and display of data.</p> |
| <p>MAPWINDOW http://mapwindow.org/</p> | <p>The MapWindow project incorporates a FOSS GIS with an extensive plug-in architecture.</p> |
| <p>Diva-GIS http://www.diva-gis.org/</p> | <p>Useful for mapping and analyzing biodiversity, such as species distribution, or 'point-distributions'. Reads and writes standard data formats, such as ESRI shapefiles; runs on Windows and Mac OSX.</p> |
|  <p>DMAP http://www.dmap.co.uk/</p> | <p>Mapping software specifically designed for producing Distribution Maps and Coincidence Maps.</p> |
|  <p>SAGA</p> | <p>The SAGA is the abbreviation for System for Automated Geoscientific Analyses. Is a Geographic Information System, has been designed for an easy and effective implementation of spatial algorithms, offers a comprehensive, growing set of geoscientific methods, provides an easily approachable user interface with many visualisation options, runs under</p> |

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| System for Automated Geoscientific Analyses http://www.saga-gis.org/ | Windows and Linux operating systems and is a Free Open Source Software (FOSS). |
|  SPRING Georeferenced Information Processing System http://www.dpi.inpe.br/spring/ | Georeferenced Information Processing System: a GIS and image processing system with an object-oriented data model which provides for the integration of raster and vector data. It is available in Portuguese, English and Spanish, via the Internet. |
| QUANTUM GIS http://www.qgis.org/ | QGIS is a user friendly Open Source GIS licensed under the GNU General Public License. QGIS is a project of the Open Source Geospatial Foundation (OSGeo). It runs on Linux, Unix, Mac OSX, and Windows and supports numerous vector, raster, and database formats. |
| Note: a wide range of free add-on GIS software can be found at: http://freegeographytools.com/ Also, try the USGS website: http://www.usgs.gov | |



| Free image processing software | Description |
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|  BILKO http://www.noc.soton.ac.uk/bilko/ | Bilko is a complete system for learning and teaching remote sensing image analysis skills. The integrated routines may be applied to the analysis of any image in an appropriate format, and include a wide range of standard image processing functions. |
|  InterImage http://www.lvc.ele.puc-rio.br/projects/interimage/ | Open source object-based image analysis (OBIA) software for automatic image interpretation. |
|  Orfeo Toolbox http://www.orfeo-toolbox.org/otb/ | Orfeo Toolbox: developed by CNES of France, for object-based image analysis (OBIA). Easier to use in Linux. |
|  OpenDragon http://www.open-dragon.org/ | Provides high-quality, commercial-grade, free remote sensing image processing software aimed at school and university users. |
|  MultiSpec https://engineering.purdue.edu/~biehl/MultiSpec/ | Developed at Purdue University USA, for analyzing multispectral and hyperspectral image data. |
|  PANCROMA http://www.pancroma.com/ | Multispectral analysis and satellite image processing utilities. |
| RAT Radar Tools http://radartools.berlios.de/ | RAT is a powerful open-source software tool for processing Synthetic Aperture Radar (SAR) remote sensing data. |
|  MAP READY http://www.asf.alaska.edu/downloads/software_tools | The MapReady Remote Sensing Tool Kit accepts level 1 detected SAR data, single look SAR data, and optical ASF data. It can terrain correct, geocode, apply polarimetric decompositions, and save to common imagery formats, including GeoTIFF. Includes an image viewer, metadata viewer, and a projection coordinate converter. |

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|  <p>SPRING Georeferenced Information Processing System http://www.dpi.inpe.br/spring/</p> | <p>Georeferenced Information Processing System: a GIS and image processing system with an object-oriented data model which provides for the integration of raster and vector data. It is available in Portuguese, English and Spanish, via the Internet.</p> |
|  <p>TNT LITE http://www.microimages.com/</p> | <p>TNT lite is a free version of TNTmips, it has all the features of the professional version, except TNTlite limits the size of Project File objects, and export processes are disabled.</p> |
| <p>Note: software maintained by the OSGeo project can be tested or used without installing ,via a live DVD:http://live.osgeo.org/en/index.html</p> | |

| EUMETSAT's softwares & tools | Description |
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| <p>Earth Observation Portal Data Centre Tool https://eoportal.eumetsat.int Manuals: Instalation guide User guide Softwares: Windows Unix MacOS</p> | <p>The Data Centre Download Tool provides users a convenient way to download their orders made using the Data Centre Archive Ordering Application.</p> |
| <p>Public Wavelet Transform Decompression Library Software License registration</p> | <p>The Wavelet Transform Software is the decompression software used to decompress SEVIRI High Rate Information Transmission (HRIT) and Foreign Satellite data files. The software is compilable on Microsoft Windows, Linux and Solaris Operating Systems, and it works on 32 bits and 64 bits, as well as mixed architectures. On Windows, it can be compiled using Eclipse or Cygwin. It is a licensed software and only available upon acceptance of the WaveLet Transform Software Licence, which will be presented to you as part of the electronic registration process.</p> |
| <p>Antenna Pointing / Coordinate Determination Tool http://www.dishpointer.com</p> | <p>The Satellite Dish Pointer/Alignment Calculator helps those who wish to point their antennas at the Meteosat satellites determine the azimuth and elevation coordinates given their latitude/longitude position. It also allows approximate determination of coordinates such as latitude/longitude. Enter the address, postcode, city or geocode for any location on earth, and select the satellite.</p> |
| <p>Navigation Software for Meteosat-9 (MSG) - Level 1.5 VIS/IR/HRV data Manual: Global Specifications Codes: Fortran 90-code C-Code</p> | <p>The navigation software incorporates source code written in Fortran 90 and C-Code, for the conversion of image coordinates (pixel column and row) into the corresponding geographical coordinates (Latitude and Longitude) of Meteosat-9 (MSG) Level 1.5 VIS/IR data. The theoretical basis for the software is the CGMS (Coordination Group for Meteorological Satellites) LRIT/HRIT.</p> |
| <p>Coastline program Documentation Files: Coastline files</p> | <p>The navigation software incorporates source code written in Fortran 90 and C-Code, for the conversion of image coordinates (pixel column and row) into the corresponding geographical coordinates (Latitude and Longitude) of Meteosat-9 (MSG) Level 1.5 VIS/IR data. The theoretical basis for the software is the CGMS (Coordination Group for Meteorological Satellites) LRIT/HRIT.</p> |
| <p>Extended File Transfer Software (EFTS) Agents Software Documentation Files: Java</p> | <p>The Extended File Transfer Software (EFTS) Agents is a collection of processes that enable local or remote file transfer, copying, and manipulation. It can be used to transfer files to or from a remote server, using various transfer protocols; pre-process files before physically copying or linking them into one or more other directories.</p> <p>The EFTS Agents software is written in Java and can, therefore, be used on multiple platforms without the need of having to recompile the software.</p> |

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| | The Java 2 runtime environment (JRE) v1.4, or higher, must be installed on the system before installing the EFTS Agents software. |
| SEVIRI Image Processing & Visualisation Software (MSGView) Documentation License: License | The navigation software incorporates source code written in Fortran 90 and C-Code, for the conversion of image coordinates (pixel column and row) into the corresponding geographical coordinates (Latitude and Longitude) of Meteosat-9 (MSG) Level 1.5 VIS/IR data. The theoretical basis for the software is the CGMS (Coordination Group for Meteorological Satellites) LRIT/HRIT. |
| MSG Native Image Reader Documentation Software: Windows | The MSG Native image reader allows visualisation of MSG native images and works under Windows. Please make sure you read the 'readme' file before use. |
| Generic EPS-Tools: EPS format Interactive Data Language (IDL) readers Documentation Code: code | <p>The Interactive Data Language (IDL) software is ideal for data analysis, visualisation, and cross-platform application development. Many of the built-in features of IDL are designed specifically for remote sensing applications. IDL has been selected to read, process, and analyse the EPS products.</p> <p>The EPS Product IDL Readers are able to process multiple versions of the product format, and, due to its object-oriented design, makes them ideal for application development. A basic knowledge of object-oriented programming and IDL is required to make full use of the software, once the EPS products are read into memory. For users more familiar with the original procedural read routines a second read routine based on the IDL EPS product readers version 2.0 has been included with this release, the procedural read routine can only read products with fixed sized records (all except GOME Level 1, GRAS Level 1, ATOVS Level 2, IASI Level 1 PCS, and IASI Level 2). These read routines are for EPS operational native products ONLY. Products in formats such as HDF, BUFR, GRIB etc. are not supported with this release. Products that have been cropped by band number by the Archive cannot be read (since this changes the format of the products), however products cropped by the Archive using the record start and stop time can be read.</p> |
| Generic EPS-Tools: Kai Documentation File: TGZ/TAR.GZ | <p>Kai is a tool used for processing EPS Product Format Specification (PFS) format products. It has several functions:</p> <ul style="list-style-type: none"> - To split a full sized product into non-overlapping, three minute chunks, simulating the PDUs produced in the EPS Ground Segment. - To combine Product Dissemination Units (PDUs), or other fragments of products, together into a large product. The input pieces may include overlapping ranges, in which case only the last one specified will be kept. - To manipulate products at the record level by selectively adding or removing records, for example removing ranges of MDRs or all records of a certain subclass. - To repair certain format errors in existing products. - As a basic viewer to display the complete MPHR, SPHR, IPR, GEADR, VEADR and VIADR-L0-OBT2UTC records, and the generic record headers for all other records. |
| Jason-2 NetCDF OGDR Reader Package Documentation Codes: C Reader IDL Reader Fortran Reader | The NOAA/NESDIS Satellite Altimetry group provides a set of C, Fortran and IDL routines, which allows to read in all the fields contained in the Jason2 NetCDF products. Example reading programs are included, which can be easily adapted and integrated in the user software. It requires a NetCDF library built and installed (NetCDF library). This software has been tested using NetCDF 4.2. Copyright 2008, 2012 USDOC/NOAA/NESDIS Laboratory for Satellite Altimetry. |
| Metopizer Metopizer User Guide Code: Metopizer | The Metopizer is a collection of tools for manipulating CCSDS Instrument Source Packets and other related data types (CADU, t-VCDU packets, Metop L0 products). |
| <p>Freeware software - freely available software, which doesn't require a signed licence or the formal acceptance of licensing conditions.</p> <p>Licensed software - software tool available free of charge, but which require a signed licence or the formal acceptance of licensing conditions.</p> | |

