

### 2met!® ACQUISITION POLAR Data Acquisition Software for Polar Orbiting Earth Observation Missions

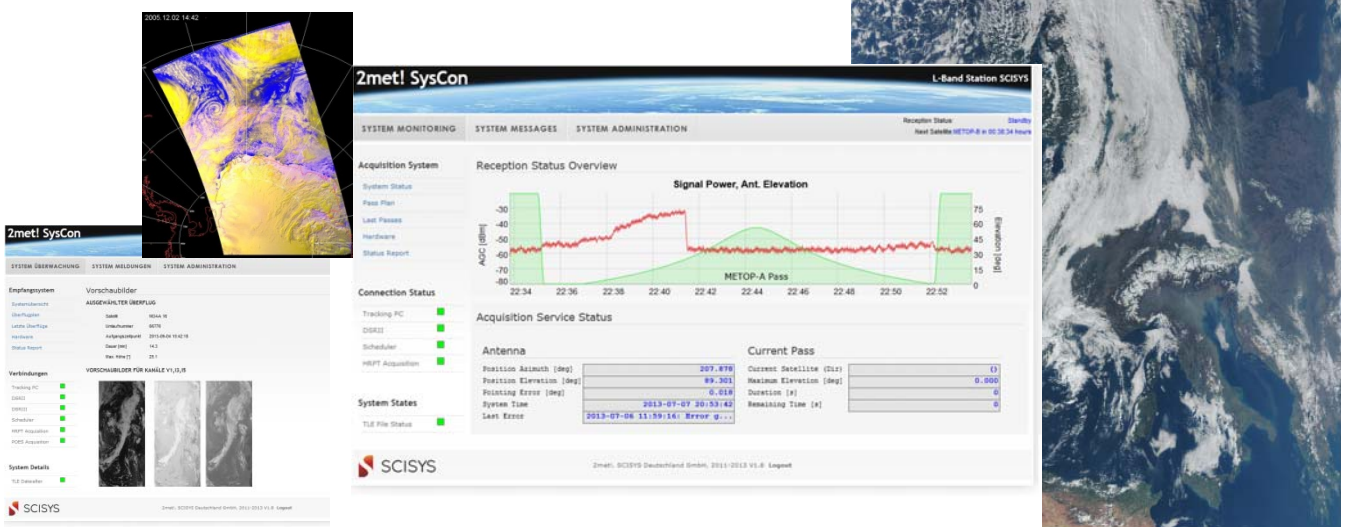
Release 4.1

**LINUX and WINDOWS systems supported**

**Support for science data from instruments VIIRS, CrIS and ATMS directly broadcasted by SUOMI NPP**

With 2met!® ACQUISITION POLAR the well known products 2met!® ACQUISITION HRPT and EOS are joined into one powerful data acquisition software package taking into account also the upcoming Earth Observation missions like SUOMI NPP and FY 3A.

2met!® ACQUISITION POLAR receives and stores all data being available from polar orbiting L-band satellites NOAA, Metop, Feng Yun, SeaWiFS and from X-Band satellites TERRA, AQUA, SUOMI NPP and FY 3A (in preparation). The acquisition software has been upgraded and improved throughout the last years to cope with the requirements of a wide 2met!® User Community.



#### Highlights

- Fully automated HRPT, C-HRPT, A-HRPT and SeaWiFS reception
  - Fully automated reception from TERRA/AQUA (MODIS and other instruments on AQUA) and NPP (VIIRS, CrIS, ATMS)
  - Acquisition of all raw data and provision of quality information for the reception including quick-looks
  - Full monitoring and control of antenna system and data reception
  - Reception scheduling with flexible satellite pass conflict resolution; "Smart Scheduling" to receive a maximum of passes in case two antenna systems are available.
  - Level 1.5 data processing, IMAPP/DAAC interface for MODIS data
  - Measurement of Doppler Effect for enhanced navigation accuracy  
Flexible adaptation to different antenna systems
  - Support for Metop Multi-Mission Administrative Message (MMAM)
- Your benefits:**
- 2met!® Application Software family with highest reliability
  - Low Maintenance/Training Effort
  - Integration support for product processing tools like IMAPP, IPOPP and CSPP.
  - NASA's RT-STPS streaming mode supported

### Computer Configuration

*2met!® ACQUISITION POLAR* is designed for the reception of data sent by polar orbiting satellites NOAA, Feng-Yun, Metop as well as TERRA, AQUA and SUOMI NPP on Linux and Windows platforms.

The software is running on a workstation or server with at least:

- 2.6GHz CPU
- 4GB RAM
- 250GB Hard Disc capacity

The acquisition software supports various tracking antenna systems out of the SCISYS *2met!®* series as well as from other suppliers. For the data reception the software has a TCP/IP socket interface to the receivers *2met!® DSR II* (up to 3.5 Mbps) and *2met!® DSR III* (up to 60 Mbps), respectively. Other receivers can be adapted on request. Accurate time synchronisation is necessary for tracking as well as accurate time stamping of data.

### Software Overview

The acquisition software consists of the Scheduling and the Data Acquisition Service. The main task of the scheduling is to perform the satellite pass prediction, to control the antenna tracking and to trigger the data acquisition. Orbital data using NASA orbital elements (TLE) are automatically updated. Additionally, the results of the Doppler Measurements are used to improve the orbital elements.

The scheduling can be configured to automatically select passes based on orbit characteristics (maximum elevation, geographical area covered, etc.) and allows manual selection or deletion of passes by the system operator. The **SMART SCHEDULING** feature allows receiving a maximum number of passes in case two antenna systems are available on-site.

The acquisition service performs the following actions:

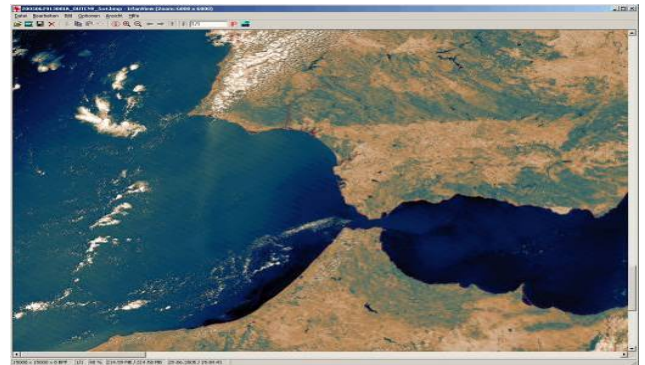
- Parameter setting on the receiver
- Data retrieval from the receiver
- Frame synchronisation and optional CCSDS processing including Forward Error Correction
- Raw data file assembly including all satellite quality parameters

The antenna control is implemented as a plug-in module to allow a flexible adaptation to different tracking systems.

### HRPT missions

To reduce additional specific hardware a part of the baseband signal processing is performed in software. The acquisition service performs the frame synchronisation, the Reed Solomon decoding and the source packet reconstruction. CCSDS

processing is required for Metop only as well as the decryption. The Decryption Key Unit will be connected by means of a RS422 interface.



The carrier frequency information is measured by the receiver. This information together with time stamps is stored in the HRPT raw data file. This additional information is used by the *2met!® PROCESSING* for the Doppler correction. This allows a quick enhancement of the navigation accuracy. All HRPT raw data files can be dispatched automatically to a configurable list of destinations by means of FTP or file copy.

### TERRA and AQUA missions

Parts of the baseband signal processing are performed in software. The data sent by the *2met!® DSR III* via the interface card are similar to the output of a bit-synchroniser. The acquisition software receives an un-synchronised data stream from the *2met!® DSR III*. The software performs the frame synchronisation, the Reed Solomon decoding and the source packet reconstruction resulting in Level 1.5 data which are available in the so-called PDS format.

### SUOMI NPP

The data from instruments VIIRS, CrIS and ATMS are received and decoded by *2met!® DSR III* and stored as raw data record files (RDR; NASA's Level-0 HDF5 format).

### Ordering Information

#### *2met!® ACQUISITION POLAR*

The software provides all functions to receive data from all relevant HRPT and TERRA, AQUA and NPP missions.

### Contacts

If you have any questions, please contact our Marketing and Sales Department at [2met@scisys.de](mailto:2met@scisys.de)



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