

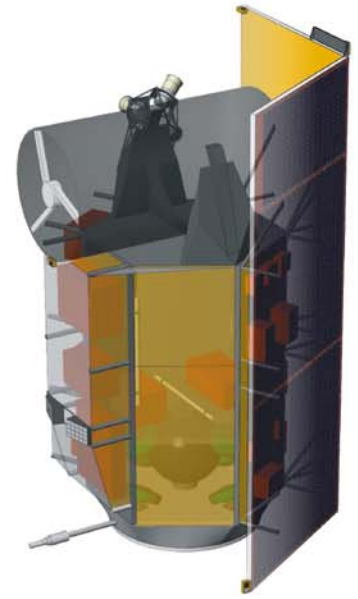
### High-Resolution High-Agility Earth Observation Platform (H<sup>2</sup>EOP)

The H<sup>2</sup>EOP platform marks the high performance end for earth observation platforms and is specifically designed to support Earth observation payload packages with the following characteristics:

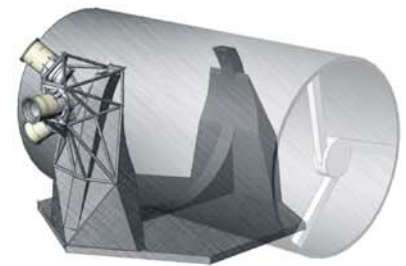
- high-performance, high-resolution optical instrument with an aperture of up to 100 cm
- high-speed on-board image data pre-processing
- high capacity image mass memory
- high data rate X-Band downlink system (~600 Mbps)

The platform in general and the instrument support panel with the isostatic mounts in particular are designed to provide a stable, low disturbance interface to the optical payload elements. The close collocation of the star sensor package to the instrument directly at the mounting interface allows for an optimized co-alignment and thus for a precise field-of-view determination of the optical instrument.

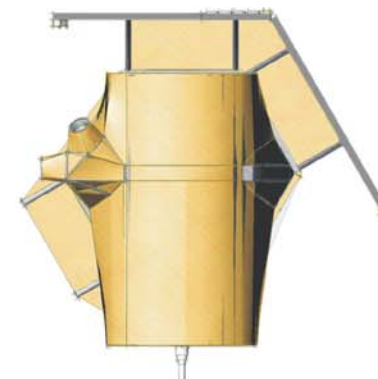
Thanks to 8 high-momentum wheels, the compact design of the overall spacecraft and the absence of deployed items with low natural frequencies, i.e. solar arrays, the spacecraft allows for high agile maneuvering and quick stabilization and readiness for new image takings.



Satellite accommodation concept



Instrument isostatic mounting assembly with directly co-aligned star tracker heads



Satellite geometry optimized for near-noon sun-synchronous orbits



8-wheel configuration for high agility performance

| Mission Information          |  |                      |  |
|------------------------------|--|----------------------|--|
| Life Time                    | 5 ... 7 years  | Typical Launcher     | Dnepr                                    |
| Orbit Altitude               | 500 ... 600 km   | Orbit Type           | Sun-synchronous<br>LTAN = 1200 ± 1.5 hrs |
| Platform Design              |  |                      |  |
| Redundancy                   | Full 1F Tolerant   | Standards            | ECSS Compatible                          |
| Operations                   | Typically 72 hours autonomous operation (time-tagged); flexible operation due to high degree of system re-programmability and re-configurability |                      |  |
| Physical Properties          |  |                      |  |
| Dimensions                   | Length: 2420 mm / Width: 2420 mm / Height: 3800 mm   |                      |  |
| Mass                         | Instrument: ~ 350 kg   | Bus: ~ 450 kg        | Hydrazine: ~ 100 kg                      |
|                              | Total: ~ 900 kg  |                      |  |
| Thermal Control              |  |                      |  |
| Type                         | Passive system using thermistors and heaters in combination with on-board thermal control application software                                   |                      |  |
| Data Handling Performance    |  |                      |  |
| Processor                    | LEON 2, 64 MHz, 44 MIPS  |                      |  |
| Data Storage                 | 8 Gbit (Housekeeping & Ancillary Data)   |                      |  |
| Software                     | ESA PUS compatible   |                      |  |
| Power System Characteristics |  |                      |  |
| Power Bus Type               | Hybrid Bus: Unregulated 50 V / Regulated 28 V  |                      |  |
| S/A Regulator                | Maximum Power Point Tracker  |                      |  |
| Avg. Payload Power           | ~ 400 W  | Peak Payload Power   | ~ 950 W                                  |
| Avg. Satellite Power         | ~ 700 W  | Peak Satellite Power | ~ 1500 W                                 |
| S/A Cells                    | GaAs Triple Junction   | S/A Peak Power       | ~ 3000 W                                 |
| Battery Cells                | Lithium-Ion  | Name Plate Capacity  | 70 Ah                                    |
| Attitude & Orbit Control     |  |                      |  |
| Type                         | Three axes stabilized, LVLH (Operation & Safe Mode)  |                      |  |
| Sensors                      | Coarse Earth/Sun Sensor  | Actuators            | Magnetorquer (3-axes)                    |
|                              | Magnetometer   |                      | Reaction Wheels (8x)                     |
|                              | 3-Head Star Tracker  |                      | Hydrazine Propulsion                     |
|                              | Gyroscope  |                      |  |
|                              | GPS Receiver   |                      |  |
| Pointing Accuracy            | 20 arcsec  | Pointing Knowledge   | < 10 arcsec                              |
| Position Knowledge           | ~ 10 m   | Agility              | 10° in < 10 sec<br>60° in < 25 sec       |
|                              |  |                      |  |
| RF Communication (S-Band)    |  |                      |  |
| Uplink Data Rate             | Up to 256 kbps   | Downlink Data Rate   | Up to 1 Mbps                             |
| Ranging                      | Optional   |                      |  |