

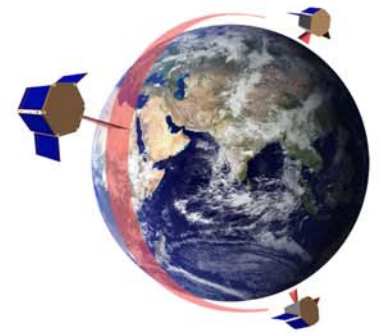
Medium-Resolution Constellation Earth Observation Platform

The Medium Resolution Constellation Earth Observation Platform is specifically designed to be launched on a medium sized launcher as Dnepr, Rockot or Vega in a stacked configuration, the number of satellites per launch depending on the capabilities of the selected launcher. Upon release in the target orbit, the satellites provide sufficient delta-v to build up a constellation within the injection orbit plane.

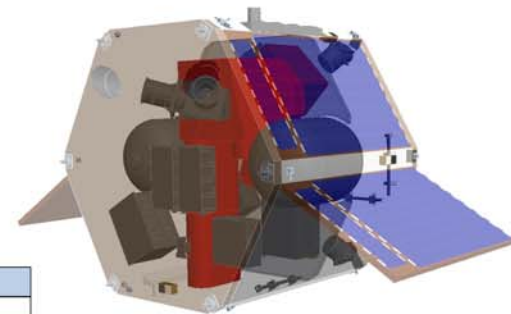
This platform is perfectly suited to accommodate customer furnished earth observation instruments as well as scientific experiments. The resources of the spacecraft (power, data storage, data downlink) are designed to support e.g. the operation of a medium resolution (around 6m GSD) optical instrument with a 10 % average duty cycle in a near-noon sun-synchronous orbit.

The available power can easily be scaled by gradually using the circumferential surfaces as solar generator and, if necessary, deploy selected panels in accordance with the flight and orbit geometries.

Mission specific adaptations of the platform to the needs of the customers is part of the overall service package provided.

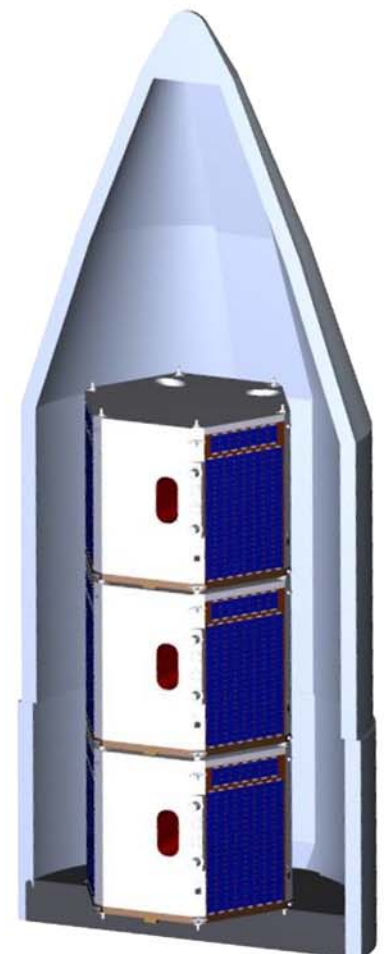


MCEOP in a 3-satellite EO-constellation



Satellite accommodation concept

Mission Information			
Life Time	5 ... 7 years	Typical Launcher	Stacked on Dnepr, Rockot, Vega
Orbit Altitude	400 ... 600 km typically	Orbit Type	Sun-synchronous 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: 1370 mm / Width: 1520 mm / Height: 1160 mm		
Mass	Instrument: ~ 50 kg	Bus: ~ 255 kg	Cold Gas: ~ 45 kg
	Total: ~ 350 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), 64 / 128 Gbit User Data		
Software	ESA PUS compatible		
Power System Characteristics			
Power Bus Type	Unregulated 28 V		
S/A Regulator	Sequential Shunt Regulator		
Avg. Payload Power	~ 50 W	Peak Payload Power	~ 250 W
Avg. Satellite Power	~ 180 W	Peak Satellite Power	~ 400 W
S/A Cells	GaAs Triple Junction	S/A Peak Power	~ 550 W
Battery Cells	Lithium-Ion	Name Plate Capacity	24 Ah
Attitude & Orbit Control			
Type	Three axes stabilized, LVLH (Operation & Safe Mode)		
Sensors	Coarse Earth/Sun Sensor	Actuators	Magnetorquer (3-axes)
	Magnetometer		Reaction Wheels (4x)
	2-Head Star Tracker		Cold Gas Propulsion
	GPS Receiver		
Pointing Accuracy	< 100 arcsec	Pointing Knowledge	< 72 arcsec
Position Knowledge	< 25 m		
RF Communication (S-Band)			
Uplink Data Rate	Up to 256 kbps	Downlink Data Rate	Up to 1 Mbps
Ranging	Optional		
RF Communication (X-Band)			
Downlink Data Rate	80 Mbps	Antenna Type	Low Gain, Range Compensation



Accommodation of MCEOP in a 3-satellite stack in a Rockot launcher