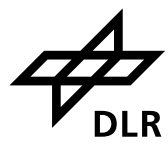
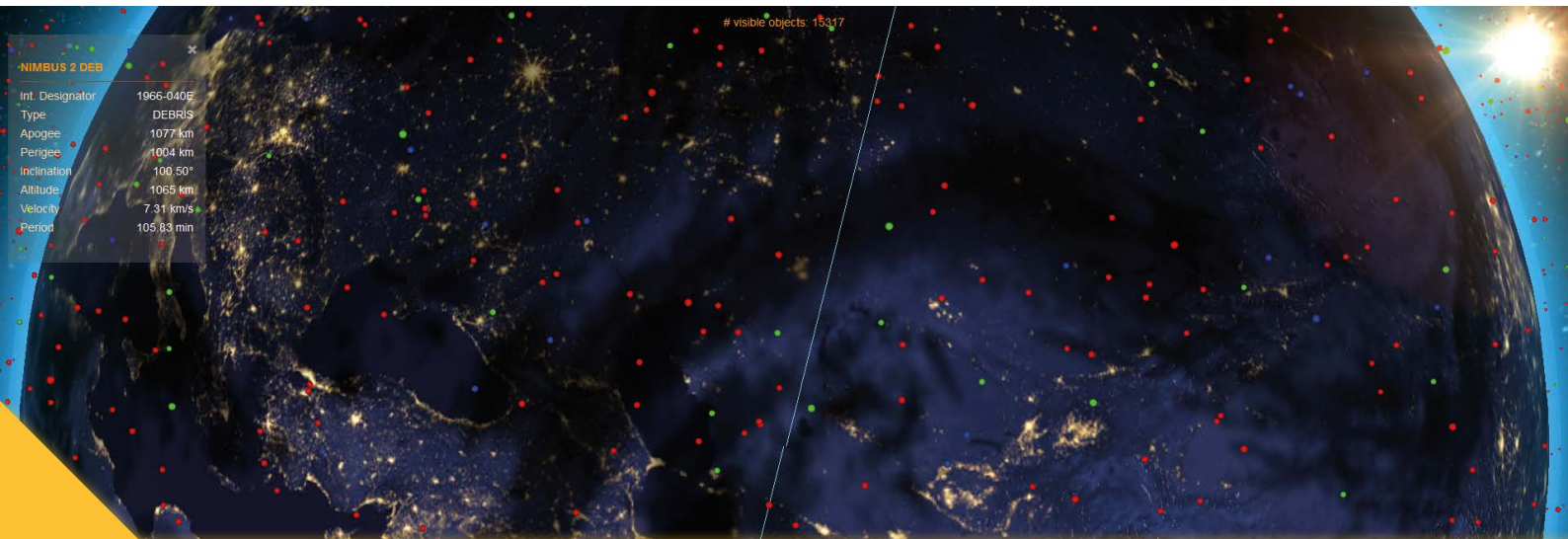




NIMBUS 2 DEB	
Int. Designator	1966-040E
Type	DEBRIS
Apogee	1077 km
Perigee	1004 km
Inclination	100.50°
Altitude	1065 km
Velocity	7.31 km/s
Period	105.83 min

Space Situational Awareness





Space Situational Awareness

Fig. 1-1 Screenshot of the BACARDI viewer. Here, a Nimbus 2 Debris and its orbit (blue line) is shown. Space debris is marked with red dots, rocket bodies with blue dots and payloads are in yellow. An information chart of the selected object is displayed in the upper left corner.

GSOC's continuing success as Germany's leading satellite control center lies in its ability to manage currently 14 satellites and payloads and meet the demand for constant and meticulous supervision to ensure a collision-free functionality. An error-free operation is jeopardised to an ever increasing degree by space debris and the number of objects orbiting the Earth, especially intensified by the presence of mega-constellations. More than 35,000 resident space objects larger than 10 cm, most of them out of control, are orbiting in space at any one time. When a satellite operated by GSOC approaches such an object, the severity of the situation must be correctly analysed in time and, in the case of a possible collision, an evasive manoeuvre must be initiated.



Fig. 1-2 Telescope stations of SMARTnet™

Further Information

For downstream services, for example orbit determination or collision avoidance, please refer to the RB Portfolio Module:

[„Flight Dynamics Services“](#)

Point of Contact

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Currently GSOC relies for the most part on data and warnings made public by the USA. As the USA catalogue of data is neither comprehensive enough nor sufficiently accurate to meet GSOC's high standard GSOC set up and operates the SMARTnet™ exchange platform together with the [Astronomical Institute of the University of Bern](#) to observe space objects via its own world-wide network of telescope stations. Its data, combined with observations collected by other international stakeholders has been freely available since 2017 to our partners, improving the situation by making it possible to determine the orbits of objects hitherto unidentified and of known objects with higher precision, thus ensuring much safer satellite operations.

GSOC's wide-ranging expertise includes the following services:

- SMARTnet™ as an international platform to exchange data
- Support in setting up telescope stations including data calibration support
- Observation of special objects within dedicated campaigns

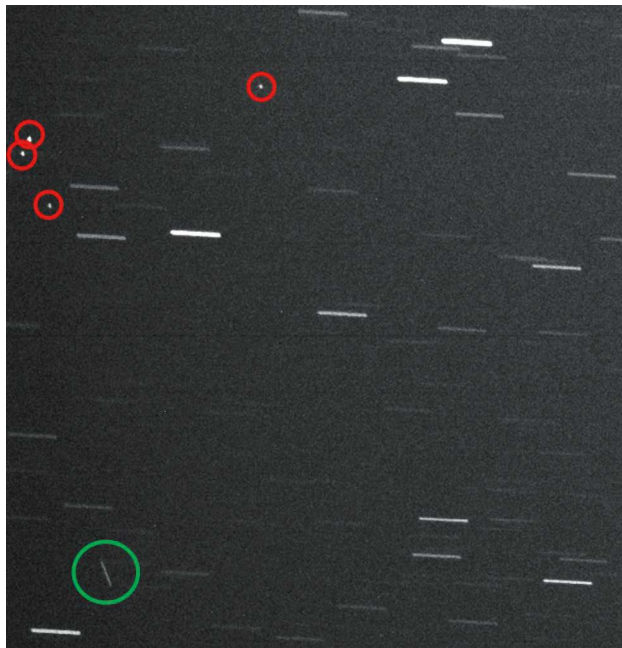


Fig. 1-3 Image of the Intelsat 29-e fragmentation taken with SMARTnet™'s 50 cm telescope located in South Africa. Horizontal stripes are stars, red circles mark fragments of the former satellite while the green circle marks an unknown drifting object. White points are either cosmic ray hits or bad pixel.

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