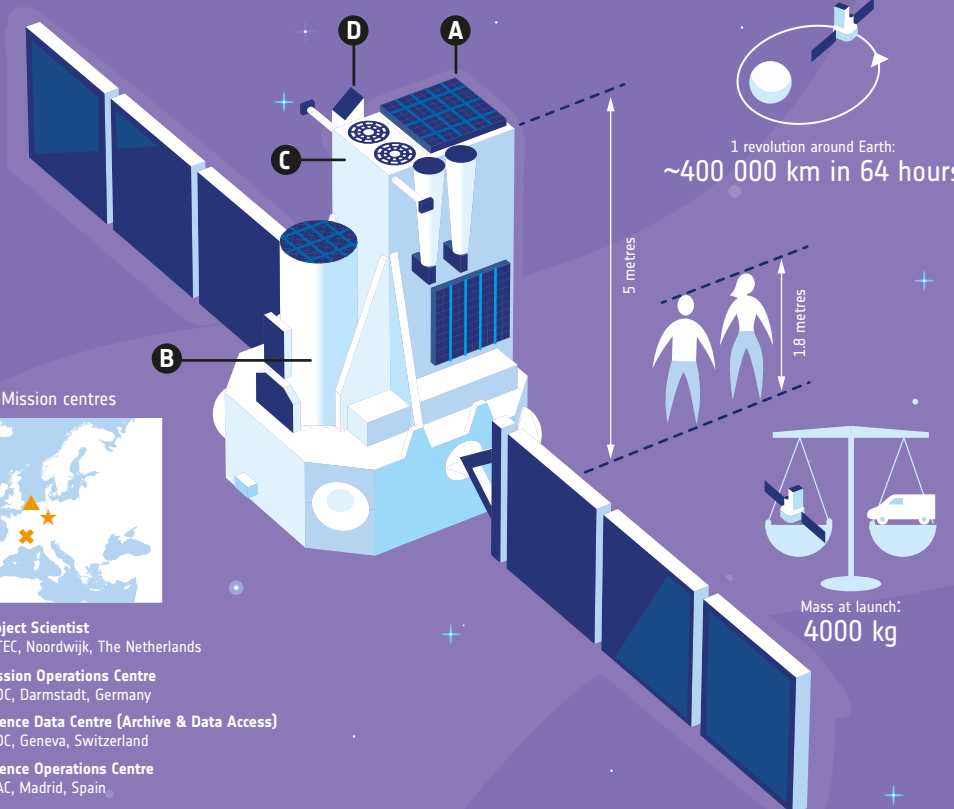
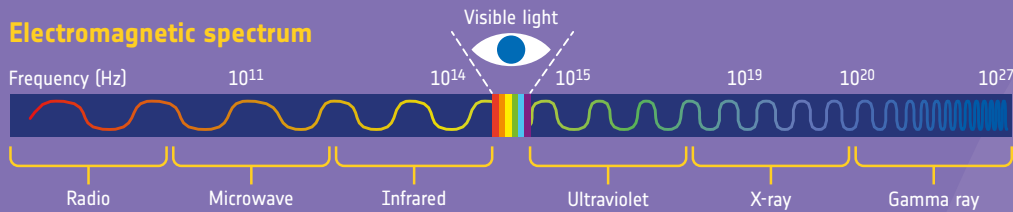


integral CELEBRATING FIFTEEN YEARS IN SPACE

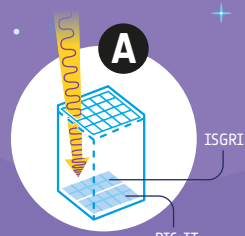


ESA's International Gamma-Ray Astrophysics Laboratory, INTEGRAL, detects some of the most energetic radiation that comes from space. Since launch on 17 October 2002, it has been observing the ever-changing, powerful and violent cosmos. It is equipped with two gamma-ray telescopes, an X-ray monitor, and an optical camera. All four of these instruments point simultaneously at the same region of the sky to make complementary observations of high-energy sources. By revealing both the diffuse emission from our Galaxy, the Milky Way, and the population of individual sources that shine brightly at these energies in our Galaxy and beyond, INTEGRAL has broadened our understanding of several classes of astronomical objects and events across the Universe.

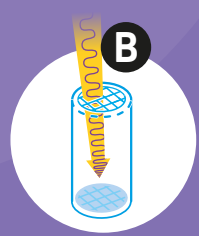
Electromagnetic spectrum



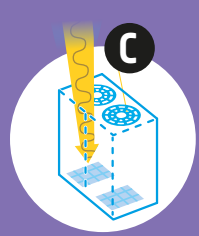
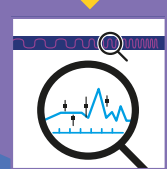
- ▲ Project Scientist
ESTEC, Noordwijk, The Netherlands
- ★ Mission Operations Centre
ESOC, Darmstadt, Germany
- ✳ Science Data Centre (Archive & Data Access)
ISDC, Geneva, Switzerland
- Science Operations Centre
ESAC, Madrid, Spain



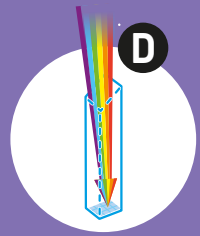
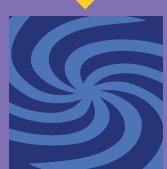
IBIS (Imager)
is a coded aperture gamma-ray instrument that provides a wide field of view (maximum about 29°x29°) with fine imaging, source identification and spectral capabilities.



SPI (Spectrometer)
performs spectral analysis of gamma-ray point sources and extended regions over a wide field of view similar to IBIS. It measures gamma-ray energies with exceptional precision.



JEM-X (X-ray monitor)
plays a crucial role in the X-ray detection and identification of the gamma-ray sources. It provides X-ray images with a field of view about 5 times smaller than that of IBIS and SPI.



OMC (Optical monitor)
observes the optical emission from the prime targets of the main gamma-ray instruments (IBIS and SPI) and JEM-X.



- 17-10-2002: INTEGRAL launched on a Proton rocket
- April 2004: New IBIS survey catalogue
- January 2006: Accumulated distance
- 18-08-2004: 100 million km
- 11-06-2006: 200 million km
- May 2007: Polarized gamma-ray emission from the Crab Nebula
- December 2009: 300 million km
- 02-04-2008: 300 million km
- 18-10-2008: 300 million km
- 15-02-2010: 400 million km
- 18-05-2010: Most distant INTEGRAL source detected: gamma-ray burst GRB 100518A
- 15-12-2012: Discovery of ⁴⁴Ti emission lines from supernova SN 1987A in the Large Magellanic Cloud
- 01-02-2012: 500 million km
- 10-01-2014: 600 million km
- 26-06-2015: Brightest INTEGRAL source observed: V404 Cyg
- 21-01-2014: First detection of ⁵⁶Ni and ⁵⁶Co in a Type I supernova, SN 2014J
- 10-11-2015: 700 million km
- March 2016: first gravitational wave event coincident with a gamma-ray burst
- 17-08-2017: Detection of GW170817/GRB170817A
- 20-08-2017: 800 million km