Successful testing of MetOp-SG-B Scatterometer antennas

Milestone paves the way for manufacturing the flight hardware for next generation weather satellites

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Madrid, 01 December 2020 - The Scatterometer (SCA) antenna subsystem of the weather satellite MetOp-SG-B, built by prime contractor Airbus Defence and Space, has successfully passed the Test Review Board (TRB). This validates the technical quality of the antenna design and production. Both customers, the European Space Agency and EUMETSAT, are happy with the results and appreciate the efforts made to reach the milestone despite the Covid crisis, giving the green light to Airbus to manufacture the flight models.

For this campaign, the test item was not flight hardware, but a prototype version specially built for initial testing, known as a structural and thermal model (STM). The tests carried out included: two deployments (before the environmental campaign and after the verification); mechanical and acoustic vibration; thermal cycling; and thermal balance. The tests have mainly focused on checking the thermo-mechanical design as well as the correct functionality of the system during the deployment of the two lateral antennas. The STM will now be partially disassembled and several parts used for the flight models.

The MetOp-SG-B Scatterometer (SCA) will provide double the resolution of the first generation MetOp satellites. The SCA measures wind speed and direction over the ocean surface, to help monitor scale phenomena such as ocean winds and continental ice sheets, and check land surface soil moisture – a key driver of water and heat fluxes between the ground and the atmosphere.

The SCA antenna comprises two parts: the electrical subsystem, developed and delivered by Airbus in Friedrichshafen (Germany) and the antenna subsystem by Airbus in Madrid (Spain) which is also responsible for the manufacturing, assembly, integration and testing activities. The qualification of the electrical functionality of the SCA antenna will be carried out during the test campaign of the first flight model that is currently in the integration phase.

A Scatterometer antenna flight model will be built and integrated onboard each of the three MetOp SG-B satellites. The first will be launched in October 2024. Flight models FM2 and FM3 will be placed in orbit in 2031 and 2038 respectively.

About MetOp-SG
MetOp Second Generation (MetOp-SG) is a follow-on system to the successful MetOp satellites, the last of which launched into its 800 km polar orbit in 2018.

MetOp-SG is Europe's component of the Joint Polar System, which is a collaboration with the US. EUMETSAT, the European Organisation for the Exploitation of Meteorological Satellites, operates the MetOp satellites and is responsible for developing the ground segment of the system and delivering the meteorological data to the world-wide user community. ESA is responsible for designing and manufacturing the space segment of the system – the satellites themselves. The principal objectives of the MetOp SG mission are: to provide operational observations and measurements from polar orbit for numerical weather prediction and climate monitoring in the mid-2020's to mid-2040's timeframe. In addition, it will provide services to atmospheric chemistry, operational oceanography and hydrology.

The MetOp Second Generation mission is actually made up of two different satellites each with different suites of instruments on-board. In October 2014, Airbus Defence and Space was selected to build these satellites. A-series satellites will be built by Airbus in Toulouse while the B-series satellites will be led by Airbus in Friedrichshafen. Both types will be based on Airbus Defence and Space's Astrobus high-power satellite platforms.

MetOp SG-A satellites focus on optical instruments and atmospheric sounders, hosting the IASI-NG (Infrared Atmospheric Sounder Interferometer – New Generation); the METimage advanced multispectral imaging radiometer; the Copernicus Sentinel-5 for atmospheric sounding plus MWS (Microwave Sounder); 3MI (Multi-view, Multi-channel, Multi-polarisation Imager) and RO (Radio Occultation) instruments.

MetOp SG-B satellites focus on microwave instruments, including the SCA (Scatterometer), ICI (Ice Cloud Imager), MWI (MicroWave Imager), the Argos Data Collection Service, collecting information from ocean-going buoys, a Space Environment Monitor and the same RO instruments as MetOp-SG-A plus.

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About Airbus

Airbus is a global leader in aeronautics, space and related services. In 2019, it generated revenues of € 70 billion and employed a workforce of around 135,000. Airbus offers the most comprehensive range of passenger airliners. Airbus is also a European leader providing tanker, combat, transport and mission aircraft, as well as one of the world's leading space companies. In helicopters, Airbus provides the most efficient civil and military rotorcraft solutions worldwide.

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