CGMS

CGMS-43 CNSA-WP-01
Prepared by CNSA
Agenda Item: E.2
Discussed in Plenary

CNSA REPORT ON THE STATUS OF CURRENT AND FUTURE SATELLITE SYSTEMS

Executive summary

China National Space Administration (CNSA) currently operates FY operational satellite system and 4 R&D satellite systems, including HY, HJ, ZY, and GF series satellite. China will keep launching several satellite systems in the near future. This report illustrates the status of CNSA's current and future satellite systems.

The status of current and future CNSA Earth observing system

1 INTRODUCTION

CNSA continuously devotes to construct an Earth observing system (EOS) for the persistent and stable observation of the Earth from the space, including meteorology series satellites, ocean series satellites, resource series satellites, environment and disaster small satellite constellation (HJ) series, and high-resolution (GF) series. CNSA is making great efforts to actively enhance the construction of space-earth integrating system, to boost the EOS serving capability, and improve the services of EOS data serving and sharing. In current stage, the EOS datasets and products have been used in diversities of applications, such as metrology, ocean monitoring, national land resource survey, ecosystem environment protection, disaster detection, city management, et al.

2 THE STATUS OF CURRENT SATELLITE SYSTEMS

At present, CNSA satellite missions operating functionally include FY-3A/B/C, HY-1B, HY-2, HJ-1A/B/C, ZY-3, CBERS-04, GF-1&2. The brief descriptions of each mission are as follow:

2.1 FY Series Satellites

FY-Series has become operational meteorological satellites and serve as one of important members of the global operational meteorological satellite system. FY-3A/B/C were launched successfully on May 27th 2008, November 5th 2010, and September 23 th 2013 respectively. All satellites are running stably on orbit. The detailed information can be found in documents provided by CMA.

2.2 HY Series Satellites

HY series includes Ocean Colour satellite (HY-1) and Ocean Dynamics Environmental satellite (HY-2).

HY-1, equipped with Ocean Colour and Temperature Scanner and 4-band CCD imager, is primarily applied for monitoring ocean colour, sea surface temperature, and sea ice. HY-1A/B were launched on May 15th 2002 and April 11th2007, respectively

from Taiyuan Satellite Launching Centre. HY-1A stopped working on March 30th 2004 while HY-1B runs functionally and stably on orbit.

HY-2 equipped with Microwave Radar Altimeter, Microwave scatter meter, and Microwave Radiometer is applied for monitoring marine dynamics status, including ocean surface wind, ocean surface height, the effective wave height, sea surface temperature, and other important parameters. HY-2 was successfully launched on August 16th, 2011 from Taiyuan Satellite Launching Centre. The performance of satellite is normal. In 2013, the sensor calibration and validation was accomplished and has some typical applications. The detailed description can be seen CNSA-WP-02.

2.3 ZY Series satellites

The CBERS series satellites are developed jointly by China and Brazil, which is designed for global environmental observation. CBERS01/02/02B/04 were launched successfully in 1999, 2003, 2007, and 2014 orderly. Currently, CBERS04 is operating very well in the polar-synchronous obit.

ZY-3 was launched on January 9th 2012 from Taiyuan Satellite Launching Centre. It works well on orbit and provides high quality measurements which have been applied into different application areas.

2.4 Environment and Disaster Small Satellite Constellation

HJ (the environment and disaster small satellite constellation) is composed of several optical satellites and microwave SAR satellites, providing moderate resolution and high temporal resolution data for environment monitoring, ecosystem protecting, and disaster detecting.

HJ-1A/B were launched on September 6th 2008 from Taiyuan Satellite Launching Centre. HJ-1C was launched on November. 19th 2012 from Taiyuan Satellite Launching Centre.

2.5 GF Series satellites

GF-1 is the first satellite of the GF high spatial resolution Series for Earth's observation. It was launch on April 26th 2013 from Jiuquan Satellite Launching Centre. GF-2 was launched successfully on August 19th 2014 from Taiyuan Satellite Launching Centre, achieving measurements with the spatial resolution better than 1 meter.

3 FUTURE SATELLITE SYSTEMS

3.1 FY-4 satellite

FY-4 is the second generation of geo-stationary meteorology satellite in China, which is planned to be launched in 2015. The detailed description can be obtained in working papers provided by CMA .

3.2 CFOSAT satellite

CFOSAT is developing jointly by China and France for ocean dynamic environment monitoring. Satellite will be equipped with a directional wave spectrum form SWIM and a microwave scatterrometer SCAT. The development stage of CFOSAT is at phase D and plans to be launched in 2018.

3.3 GF series satellite

GF-4 plans to be launched in December 2015 from Xichang Launch Centre. GF-3 and GF-5 is at phase D and plans to be launched in 2016.

3.4 New satellites

Currently, CNSA starts the demenstration of a set of new EOS satellites, including new generation ocean colour satellite, ocean salinity satellite and Laser atmospheric observation satellite.

4 CONCLUSIONS

China EOS is now enhancing its operational serving capability. A set of R&D satellites are transforming gradually to operational mode after on-orbit tests. With CGMS this excellent platform, CNSA is very glad to communicate and share our experiences with other state members, explore new EOS technology and sensors, and to make more contributions for the optimization of global EOS.