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Status of the Current CNSA Earth Observation Missions

CGMS is informed of the status of the current China National Space Administration Earth Observation missions. Currently, the system is comprised of FY series satellites, HY-1B satellite, HJ-1A&B satellites and HY-2 satellite. This paper introduces status of satellites of CNSA in orbit.

Status of the Current CNSA Earth Observation Missions

1. Introduction

During last several decades, the use of satellite remote sensing technologies and applications for the national development has been extended exponentially in China. Therefore, CNSA has been built up an Earth observation system for the long-term observation of the Earth. The entire observation system has FY-series satellites, CBERS series satellites, HY-series satellites, and HJ-series satellites. In current stage, eight satellites are operating in the orbit, including FY-1D, FY-2D, FY-2E, FY-3A, FY-3B, HY-1B, HY-2 and HJ-1A/B.

2. FY-Series Satellites

FY-Series satellites have become operational meteorological serving as one of important members of the global operational meteorological satellite system which consists of polar orbit satellite and geostationary orbit satellite. The detailed information is described by CMA.

3. HY-Series Satellites

HY-1 includes HY-1A and HY-1B satellite. The HY-1A satellite was launched on May 15th 2002, which was designed to monitor ocean colour, sea surface temperature, and sea ice/coastal zone and to detect red tide and pollution events. HY-1A satellite stopped working on March 30 2004.

HY-1B satellite, equipped with two payloads: ocean colour and temperature scanner and 4-band CCD imager, was launched on April 11 2007 for observing ocean colour and sea surface temperature. It can provide the daily products for users in different application fields.

Ocean Dynamics environmental satellite program (HY-2), has been developed since 2007. It has four payloads: Microwave Radar Altimeter, Microwave scatter meter and two, Microwave Radiometers. The major target of the HY-2 mission is to monitor and detect marine Dynamics status, including ocean surface wind, ocean surface height, the effective wave height, ocean gravity field, ocean circulation, sea surface temperature, and other important parameters for oceanic scientific researches. Furthermore, the HY-2 mission also provides satellite remote sensing information for marine environmental forecasting and global climate change research. HY-2 was launched at September 16th, 2011 from Taiyuan Satellite Launching Center. After

launch, the satellite is experiencing a series of on-orbit tests and will be used for the major operational applications from the begin of 2012.

4. CBERS Series Satellites

The CBERS satellite series, including CBERS 01&02, CBERS 02B, and CBERS 3&4, has been developed jointly by China and Brazil. Main payloads are Multi-spectral Camera, Infrared Scanner Camera and Wide Field Imager Camera. The CBERS series aims to provide continuous moderate spatial resolution images for serving the Chinese and Brazilian remote sensing communities in agriculture, forestry, geology, Natural Disaster Management, hydrology, coastal mapping et al. .

CBERS02 was launched on Oct. 21, 2003. CBERS 02B was successful launched On Sep. 19th, 2007, which equipped with CCD camera, WFI and High Resolution camera (HR).

Both the CBERS02 and CBERS02B stopped working in current stage, therefore, as the continuity, CBERS03/04 is being in the development.

5. Environment and Disaster Small Satellite Constellation

The environment and disaster small satellite constellation is planned to be composed of four optical satellites and four microwave SAR satellites. The first stage of constellation (HJ-1) includes two optical satellites and one SAR satellite, for studying the environment and disasters with high temporal resolution, multispectral 30 -300 meter spatial resolution

Both HJ-1A and HJ-1B were launched on Sep. 6, 2008. HJ-1A is equipped with a CCD camera and a hyper-spectral camera while HJ-1B was equipped with a CCD camera and an IR camera. The revisit period of the visible and near infrared multi-spectral data is 48h, the infrared camera and hyper-spectral imager is 96 hours. Now, they are operating and provide remote sensing data for different users all over the world.