



CENJOWS

SPACE TECHNOLOGY – CHINA'S YAOGEN SATELLITES

Chinese Space Surveillance: Yaogan Satellites Constellation. Satellites play a vital role in Chinese pursuit of Anti access and Anti denial strategy by providing surveillance capability on 24 hour basis of the chosen area. The Yaogan series of satellites were launched by China from 2006 onwards, are a constellation of operational ISR satellites that provide China a global Intelligence Surveillance and Reconnaissance (ISR) capability. These satellites are positioned in Low Earth Orbit (LEO) in the space at the height of 600km. A 2018 report from National Institute of Advance Studies suggest that satellites have been launched three at a time from the Xi Chang Launch complex using the CZ 2C launcher. The three orbital planes occupied by the twelve satellites are also spaced equally around the earth separated by 120 degrees.

The architecture of this 12 satellite constellation suggests that the purpose is to achieve a near continuous ELINT surveillance of the regions between 35 degrees North and 35 degrees South Latitude.

It is likely that two other triplets will soon be launched so that the three equally spaced orbital planes will each have six satellites apiece spaced 60 degrees apart. This will create an operational constellation of 18 satellites.

Chinese Yaogan satellite constellation comprising ELINT, SAR and EO satellites provide large area surveillance capabilities especially over the Pacific region. This constellation has been in operation since 2010 and provides China with the ISR capabilities to detect adversaries at distances far away from its coastline.

The constellation uses three kinds of satellites:-

- Electronic Intelligence (ELINT) satellites that pick up the electronic emissions and locate the object of interest in the Ocean with a relatively coarser spatial resolution;
- Synthetic Aperture Radar carrying satellites that are cued by the ELINT satellites or by other satellites in the constellation that have located the object of interest;
- Electro-optical satellites that are cued by the ELINT satellites or by other satellites in the constellation that had located the aircraft carrier earlier.

Till the end of April 2018, China had launched 31 Yaogan satellites. Apart from catering to specific missions such as the Anti Satellite Ballistic Missile (ASBM), this constellation provides the needed large area surveillance capability for its Anti Access and Anti denial (A2AD strategy). It is expected that all operational areas would be covered by ELINT satellites.