

The National Space Science and Technology Center (NSSTC) was established in 2016 in Al Ain City, which is a city in the eastern region of the emirate of Abu Dhabi, the capital of the United Arab Emirates UAE. NSSTC has been established jointly by UAE University, the UAE Space Agency and the Telecommunications Regulatory Authority (ICT-Fund). The center has been established with the intension to make it the leading center of Excellency in space sector in the UAE to serve the UAE's national strategic innovation agenda in the space sector by providing excellent opportunity for the next generation of space scientists and space engineers to explore various scientific arenas in order to achieve international standards. The Center is focusing its research in six research areas. These areas include space resource utilization, space communication and precision positioning, on-board real time systems, space and atmospheric science, space situational awareness and ground station, and propulsion and combustion.

One of the main center's projects is the development of the 813 satellite, a Hyperspectral Satellite for remote sensing. The project is coupled with a supporting group of scientists to perform high quality hyperspectral data processing chain at different levels.

Another promising project that has been developed in the center and expected to launch in 2021 is the GNSS RF signaling technology demonstrator satellite. A 6-U CubeSat that will be used to experiment communication and global navigation augmentation signaling techniques in a low earth orbit.

In order to support the development of these and other future planned satellite projects, the center is working on the development of an in orbit attitude and orbital control systems (AOCS) as well as a, rad-hard, general purpose, command and data handling (CDHS) system. The center is also in the process of constructing a unique space systems' assembly, integration, and testing (AIT) facility. This world-class facility is designed and being built with top standards to accommodate the AIT activities for NSSTC's projects. Upon it's completion, this facility will be capable of hosting the development of multiple satellites each of size up to 200 kg, emphasizing the world's satellite miniaturization movement. In addition to the AIT facility, the center is currently developing a Ground Station and Mission Control with large antenna for satellite's communication.

NSSTC has established scientific research groups focusing on planetary and mars atmosphere, based around work in collaboration with the Emirates Mars Mission EMM (Hope probe) which will be launched in 2020, arriving at Mars in early 2021. This research focuses on atmospheric retrievals using thermal infrared observations; data assimilation of EMM thermal infrared and visible observations into a Mars general circulation model (GCM); studying the Martian dust cycle using GCMs; and studying processes linking the lower atmosphere and surface of Mars. The groups are also researching in Earth observation and surface processes, Jupiter's atmosphere, surface and subsurface processes on Mars, high-performance computing, radiative transfer, and other robotic exploration of the Solar System. Another study group is focusing on the land use land cover (LULC) of the UAE which has tremendously changed in the past few decades because of the growth in economy and population. This study aims to develop a nationally consistent multi-temporal land cover and land use change database at a high spatial and temporal resolution which can make ecological monitoring easy and reliable to facilitate an understanding of the indicators of ecological changes due to extreme urbanization and changing climate.