

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Mars Exploration – Science, Instruments and Technologies (3B)

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OVERVIEW OF MARS RESEARCH AT THE NATIONAL SPACE SCIENCE AND TECHNOLOGY
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Abstract

At the National Space Science and Technology Center (NSSTC) at UAE University in Al Ain we are building an Earth and Planetary Science Unit, which includes a Planetary Science research group focused on Mars, involving faculty, researchers, and students. With the arrival of the Emirates Mars Mission (EMM) at Mars in 2021, to coincide with the United Arab Emirates' 50th anniversary, expanding and maintaining the UAE's research capabilities in planetary science requires a strong national academic research base to train students, attract foreign expertise, and develop the space missions of tomorrow.

The NSSTC's aims in this area are (1) to explore, study, and better understand the Martian environment via world-class research, (2) to educate MSc and PhD students, research assistants, and postdoctoral researchers within the UAE to maximize the return from remote sensing missions and EMM, and to prepare them for future Moon and Mars missions, (3) to enhance the UAE's contribution to regional capabilities and programs in remote sensing and planetary science, (4) to enhance the international involvement of the UAE within the international community of planetary scientists, and (5) to provide relevant technical and scientific expertise to wider Emirati society. These efforts will leverage the NSSTC's central position in the establishment of an active space sector in the UAE from an academic and a research standpoint.

This paper will give an overview of the NSSTC's research in Mars atmospheric science. The group's current interests include Mars weather and climate, dust storm dynamics and dust lifting, data assimilation, global climate modelling, infrared and visible atmospheric remote sensing, atmospheric wind structure, areostationary observations, and future mission development.