

Michael J. Taylor

Teaching

Research

Publications



During NASA's [Stardust](#) capsule return mission

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At [Southampton University](#), U.K., my graduate research focused on acoustic-gravity waves and their effects on the upper atmosphere using modified low-light TV cameras. In 1991 I moved to Utah State University, working with the Space Dynamics Laboratory, and in 2001 I joined the [Department of Physics](#) where I now enjoy teaching, research and interacting with students.

Since moving to the USA, I have been implemental in the development and utilization of several novel digital imaging systems for studying faint emissions from the night sky. These include an All-sky multi-wavelength CCD imager, a Mesospheric Temperature Mapper (MTM), and most recently, an advanced infrared Mesospheric Temperature Mapper (AMTM) for high-latitude research. My group utilizes 2-dimentional digital analysis techniques, stereo imaging and airglow tomography for remote measurements of a broad range of upper atmospheric phenomena. These include mesospheric and lower thermospheric gravity waves and temperature perturbations, polar mesospheric clouds, equatorial and mid-latitude F region dynamics, lightning induced transients "sprites" and "elves", and meteors and satellite ablation signatures using airborne measurements. Most recently, we successfully completed 5-years of mesospheric temperature, gravity wave and instability measurements as part of a coordinated NSF program conducted from Hawaii, with new field measurements planned for Cerra Pichon, Chile, in early 2009. I am also a Co-investigator on the [NASA Aeronomy of Ice in the Mesosphere \(AIM\)](#) mission to study polar mesospheric clouds (NASA Group Achievement Award 2008).

Graduate and undergraduate students are involved in all aspects of these programs, including field measurements in Alaska, Colorado, Scandinavia, Brazil, Australia and Japan, and present the results of their analyses at national and international scientific meetings. To date, these studies have resulted in over 100 collaborative papers.

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