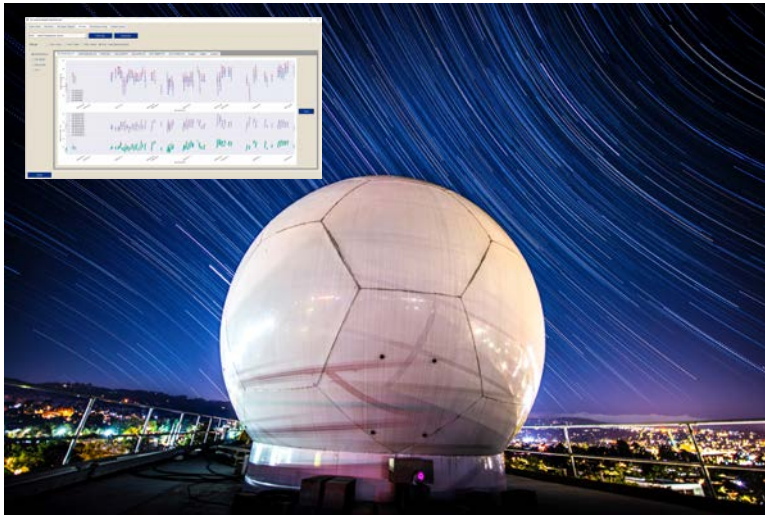


# Predictive Failure Analysis for Autonomous Networked Ground Stations



MC3 Ground Station used to Prototype ML Algorithms for Predictive Failure Analysis

## Problem Statement

- How can MC3 ground stations be autonomously monitored for health and status information to ensure reliability and rapid reconfiguration through predictive failure analysis?
- Can likelihood of future, specific failures be estimated and mitigated before the failure occurs?

### Solution:

- The development of specialized software, particularly machine learning and visualization, interfacing with COTS equipment.

## Impact

- Transition from reactive to proactive response to ground station equipment failures.
- Demonstrate that machine learning algorithms can analyze the health and status data from ground station equipment and accompanying software.
- Determine hardware and software redundancy required to meet uptime requirements for remote ground stations.

## Transition

- DoD Space has fielded a network of sited and remote MC3 ground stations that require monitoring and maintenance.
- Two NPS master's students are working on theses that directly relate to autonomous monitoring.
- The results of this effort to develop predictive failure analysis will be proposed to DoD Space for full scale implementation not only into the DoD Space MC3 ground station network, but into the international FVEYS ground station network.