



Virginia Ground Station Network (VGSN) Infrastructure
Virginia Space Cubesat Program, Mission 1 (VSCP-1)

Note: The VGSN is a collaborative effort between VT (lead), ODU, UVA, and Wallops Flight Facility with initial sponsorship from VSGC

Virginia Tech Ground Station Services:

- Mission Communications Planning & Coordination
 - Communications CONOP development
 - Licensing Coordination with FCC consultant
 - Detailed Link Budget Analysis
 - Detailed Data Volume Analysis
- Virginia Ground Station Network (VGSN) Services Overview:
 - Tracking Station GNU Radio Modem development
 - Intermediate Signal Processing for WFF Interfaces
 - Secure Connectivity via VT maintained VGSN VPNs:
 - Mission Ops Center and Tracking Stations (Operations Network)
 - Mission Science Centers and Mission Data Warehouse (Data Network)
 - Ground based comm integration and test services
- Virginia Ground Station Network Operations
 - Real Time Operations for spacecraft Command and Control
 - Rapid Orbit Determination (GPS Based) & TLE generation
 - Pass scheduling, deconfliction, and coordination
 - Command Routing Flexibility (Any Ops Center to TS)
 - Mission Data Warehouse – Mission Science
 - Data Curation and Archiving
 - Higher level data processing services
- VT Ground Station (VTGS) – Tracking Station (TS) Assets:
 - Full Duplex TX/RX Federal S-Band Tracking Station
 - Half Duplex Federal TX/RX UHF Tracking Station
 - Simplex, Federal UHF RX Only Tracking Station