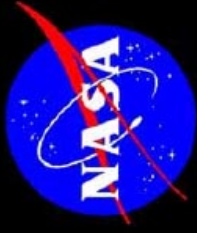


Enigmatic Wrinkle Ridges in martian northern plains

Paul Withers,
Lunar and Planetary Laboratory,
University of Arizona

GSSP Presentation
09 August 2000
Mentor: Greg Neumann

Mars Global Surveyor Project
**Comparison of
Earth and Mars**



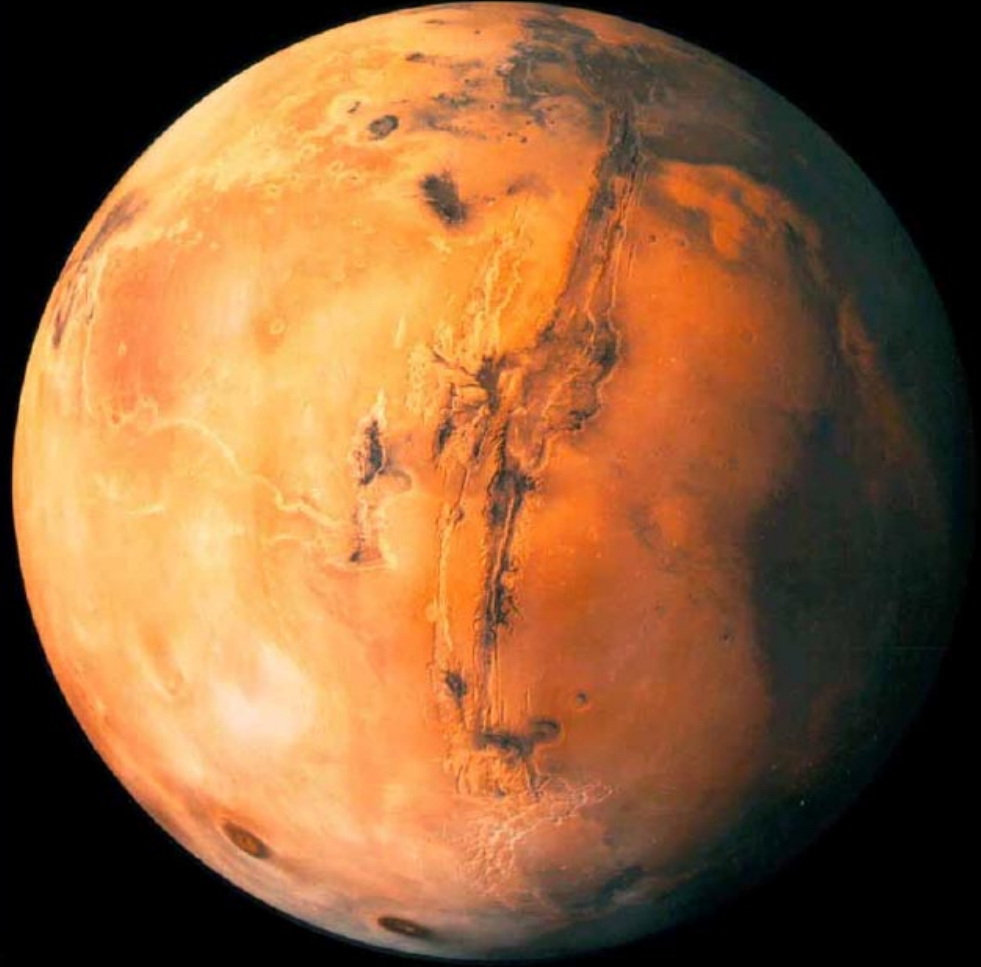
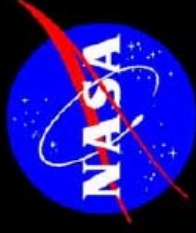
**12,756 km
Diameter**



**6,794 km
Diameter**

JPL

Mars Global Surveyor Project
Simple Facts
About Mars



Diameter: 6,794 km (53% of Earth)

Mars Day: 24 hrs, 37 min

Mars Year: 687 Earth Days

Mass: 11% of Earth

Gravity: 38% of Earth

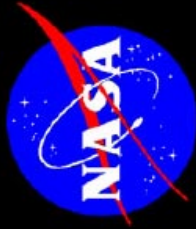
Atmosphere: 95% Carbon Dioxide,
3% Nitrogen

Atmospheric Pressure: 1% of Earth's Sea Level

Temperature Average Between at Surface: -140 to 20 Celsius

JPL

Mars Global Surveyor Project MGS Spacecraft In Mapping Configuration

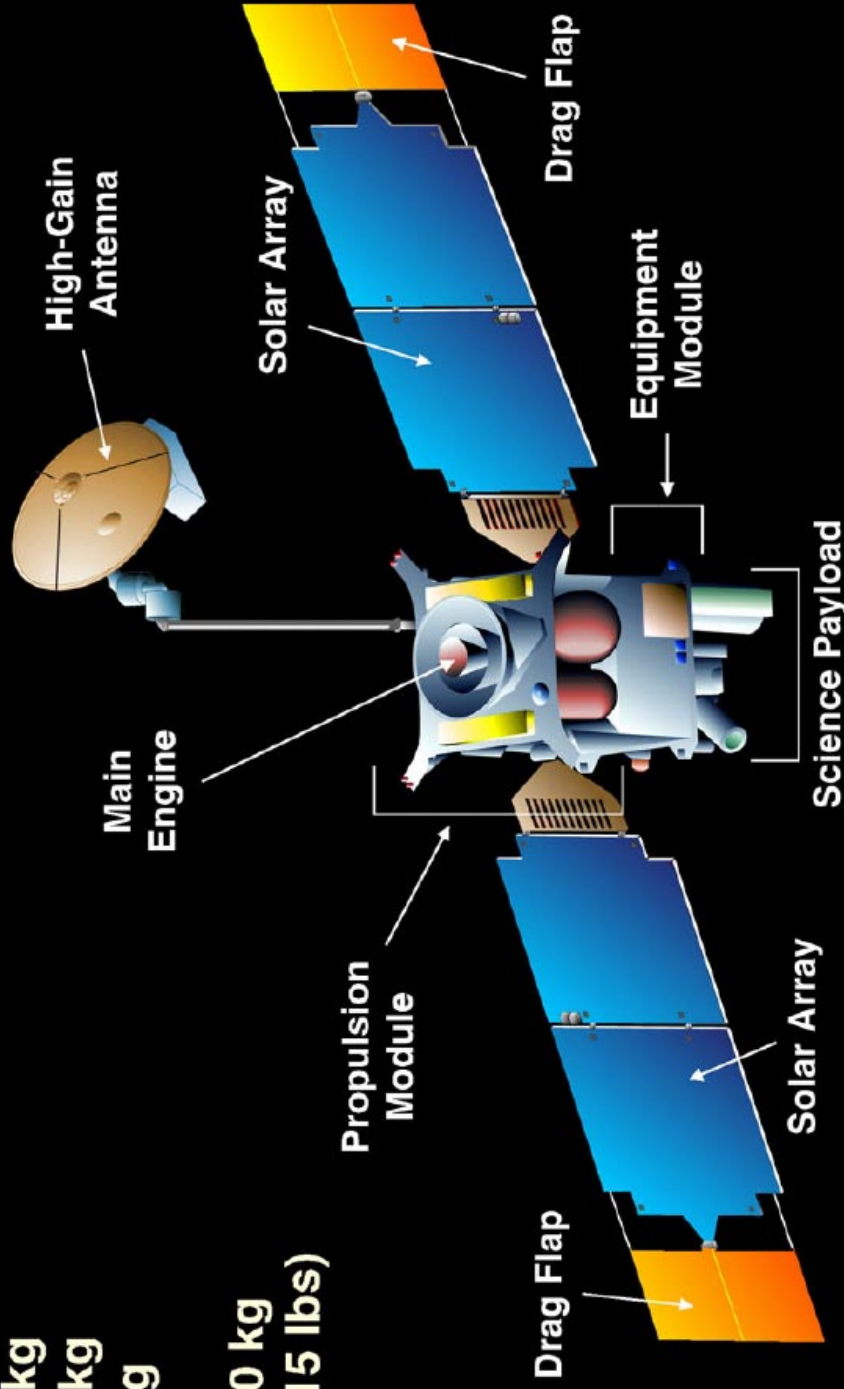


Structure Mass: 595 kg
Propellant Mass: 380 kg
Payload Mass: 75 kg

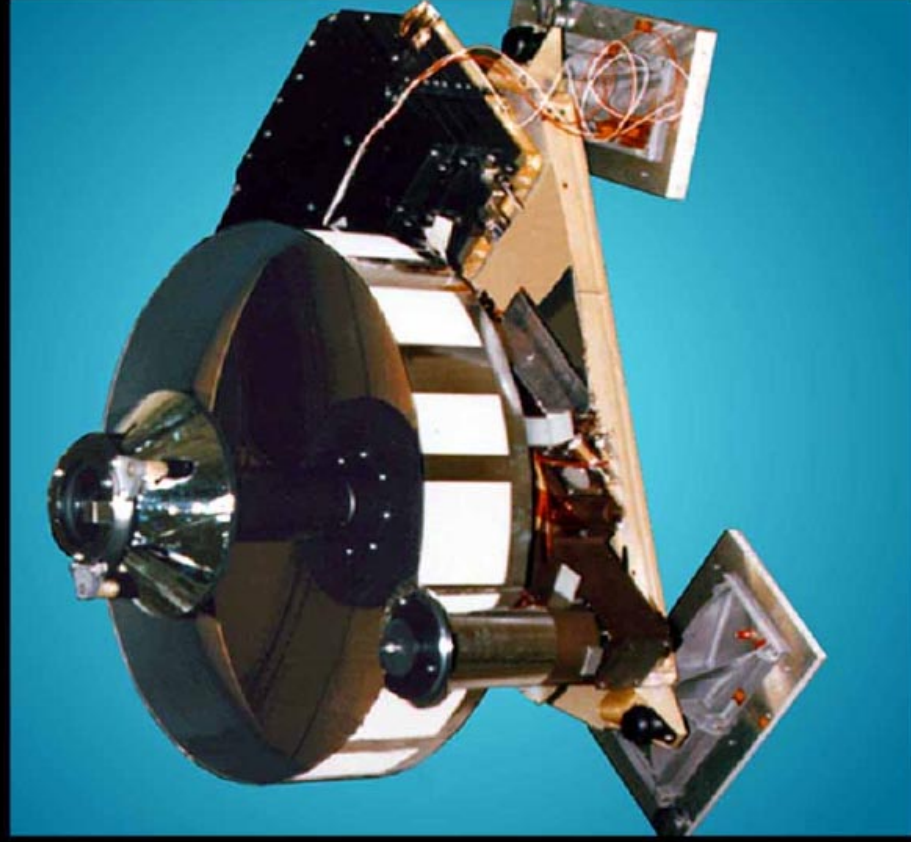
Total Mass:
1,050 kg
(2,315 lbs)

Science Payload:

- Electron Reflectometer
- Magnetometer
- Mars Orbiter Camera
- Mars Orbiter Laser Altimeter
- Mars Relay Radio System
- Radio Science
- Thermal Emission Spectrometer



Mars Global Surveyor Project
Mars Orbiter
Laser Altimeter

**Measurements:**

Altitude of Spacecraft above the Surface

Resolution:

Vertical: 2 m (local), 30 m (global)

Horizontal: 160 m

Laser Transmitter:

Diode Pumped, Q-Switched Nd:YAG Laser
40-45 mJ/pulse @ 10 pulses/sec continuous

Antenna Receiver:

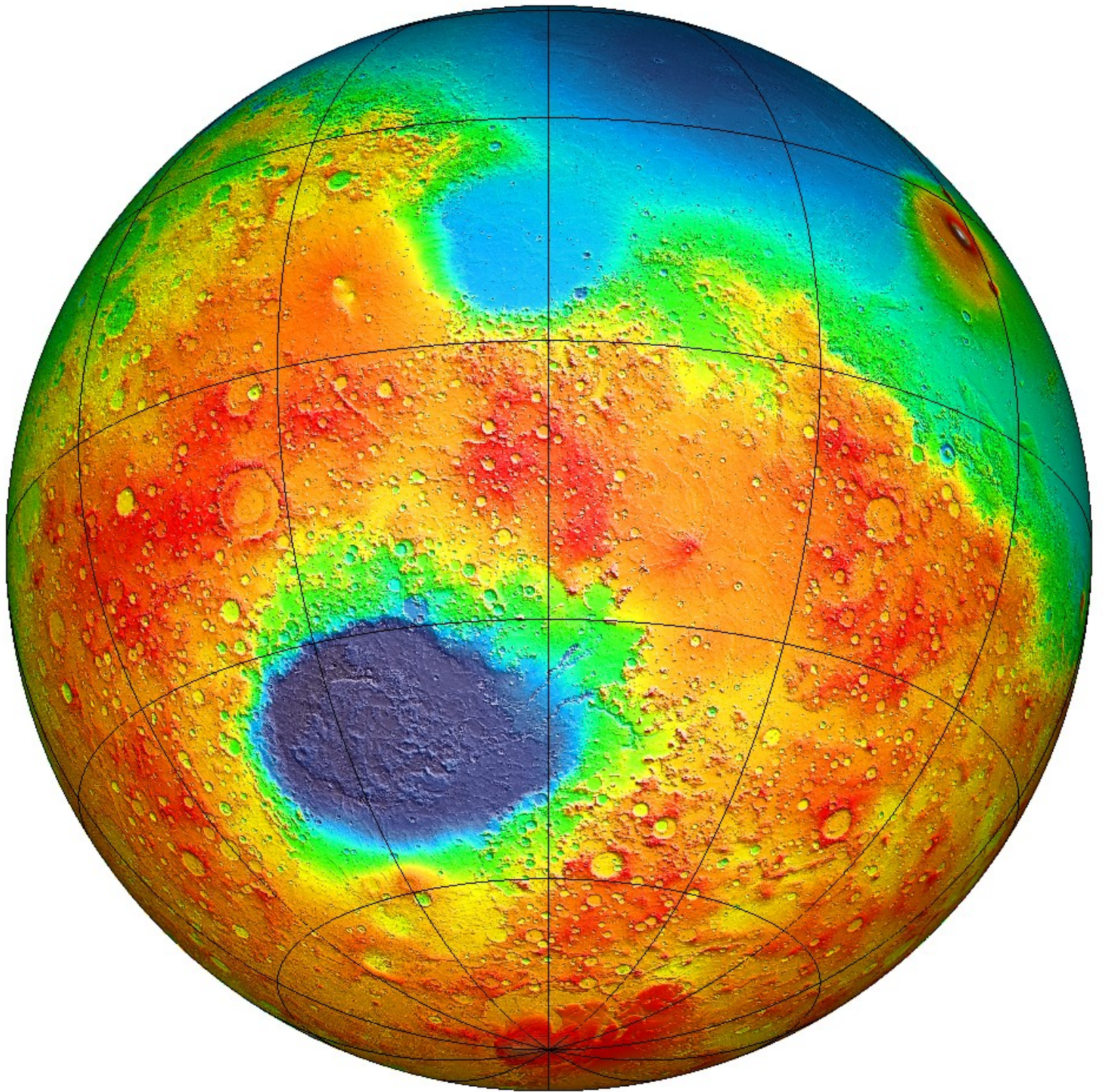
50 cm Parabolic Antenna (0.85 mrad FOV)
with Si APD Detector
4 Electronic Filters (20, 60, 180 and 540 ns)

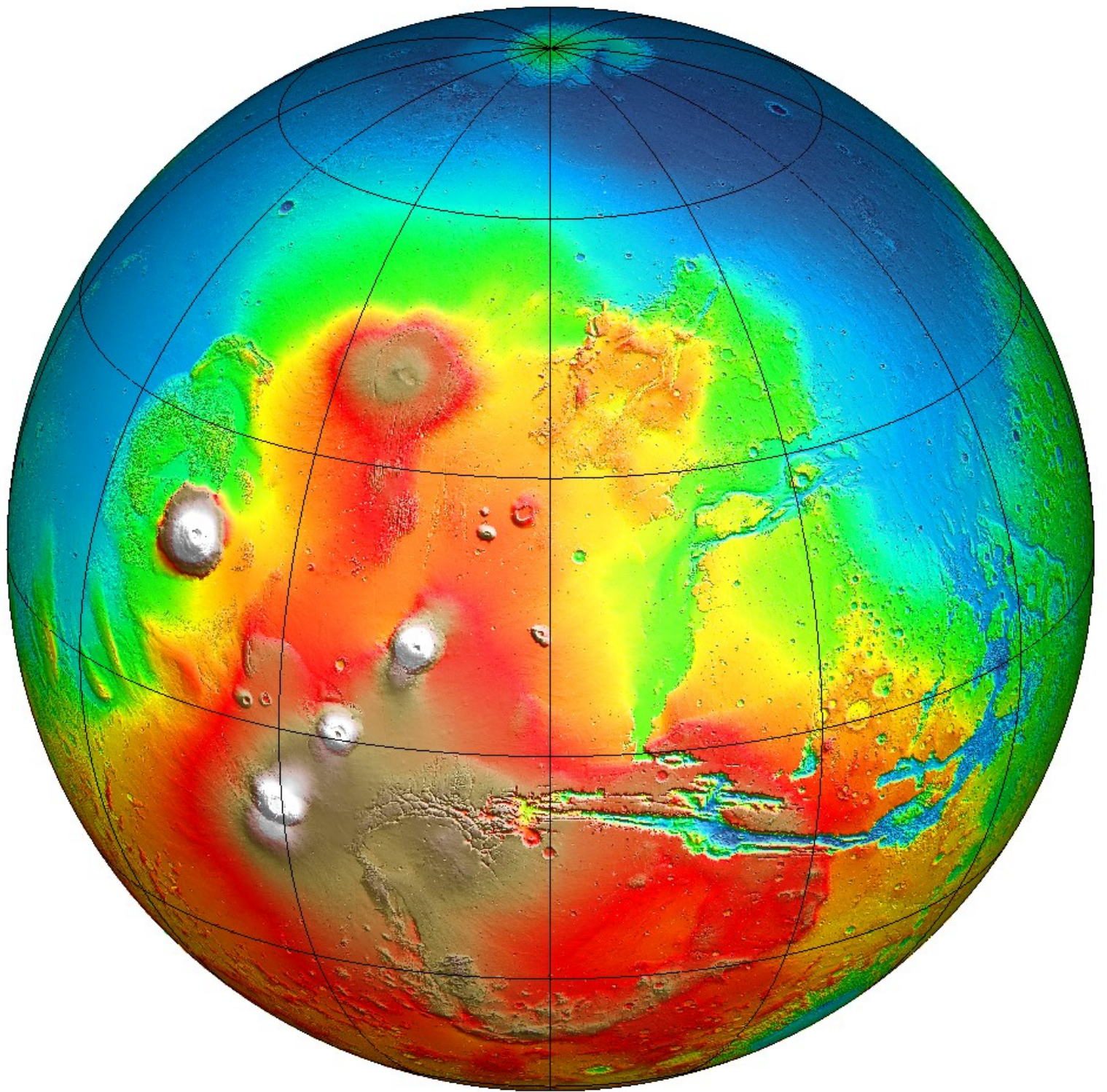
Electronics:

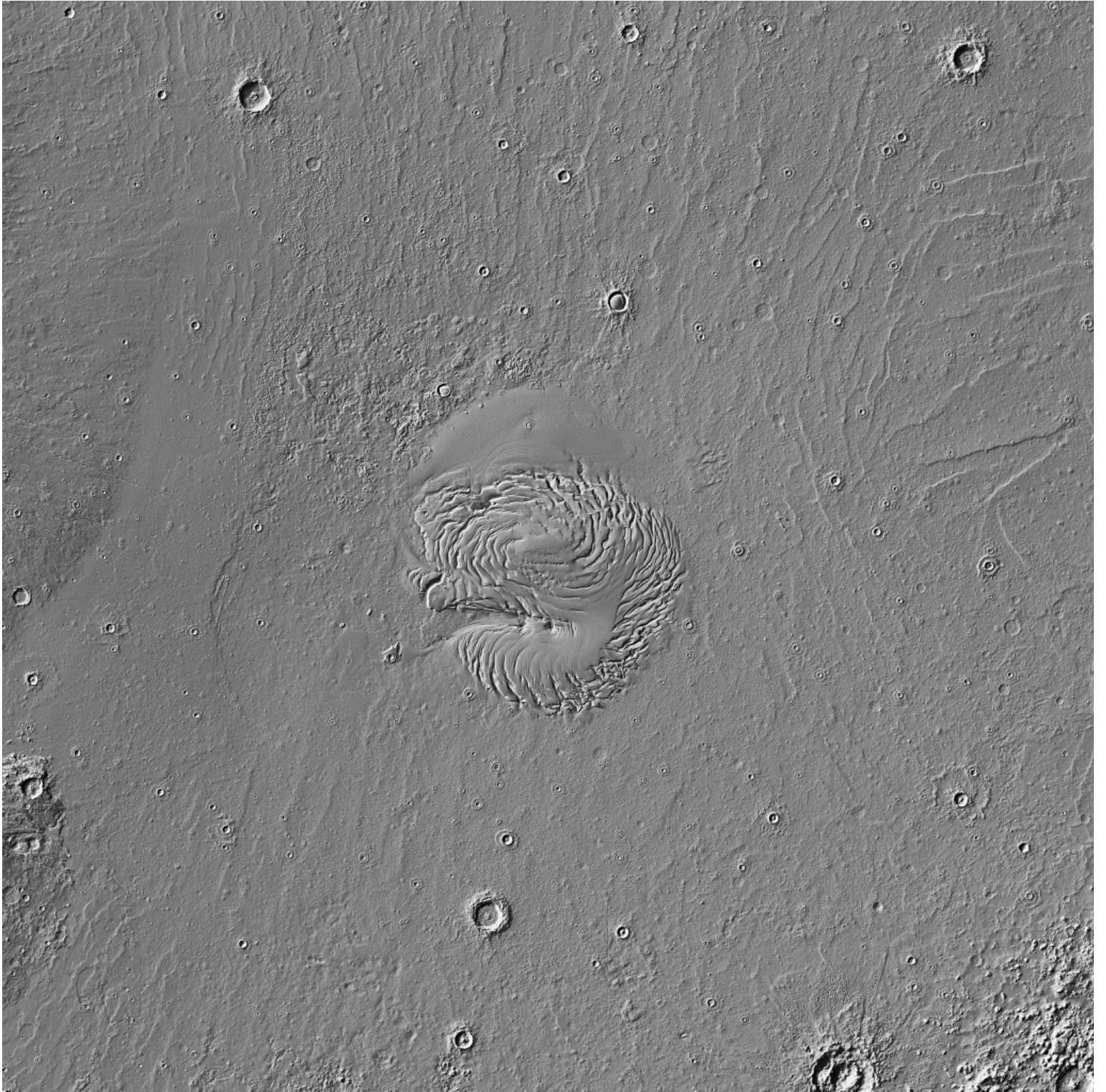
80C86 Microprocessor, 54HC Family Logic
Data Rate: 618 bits/sec

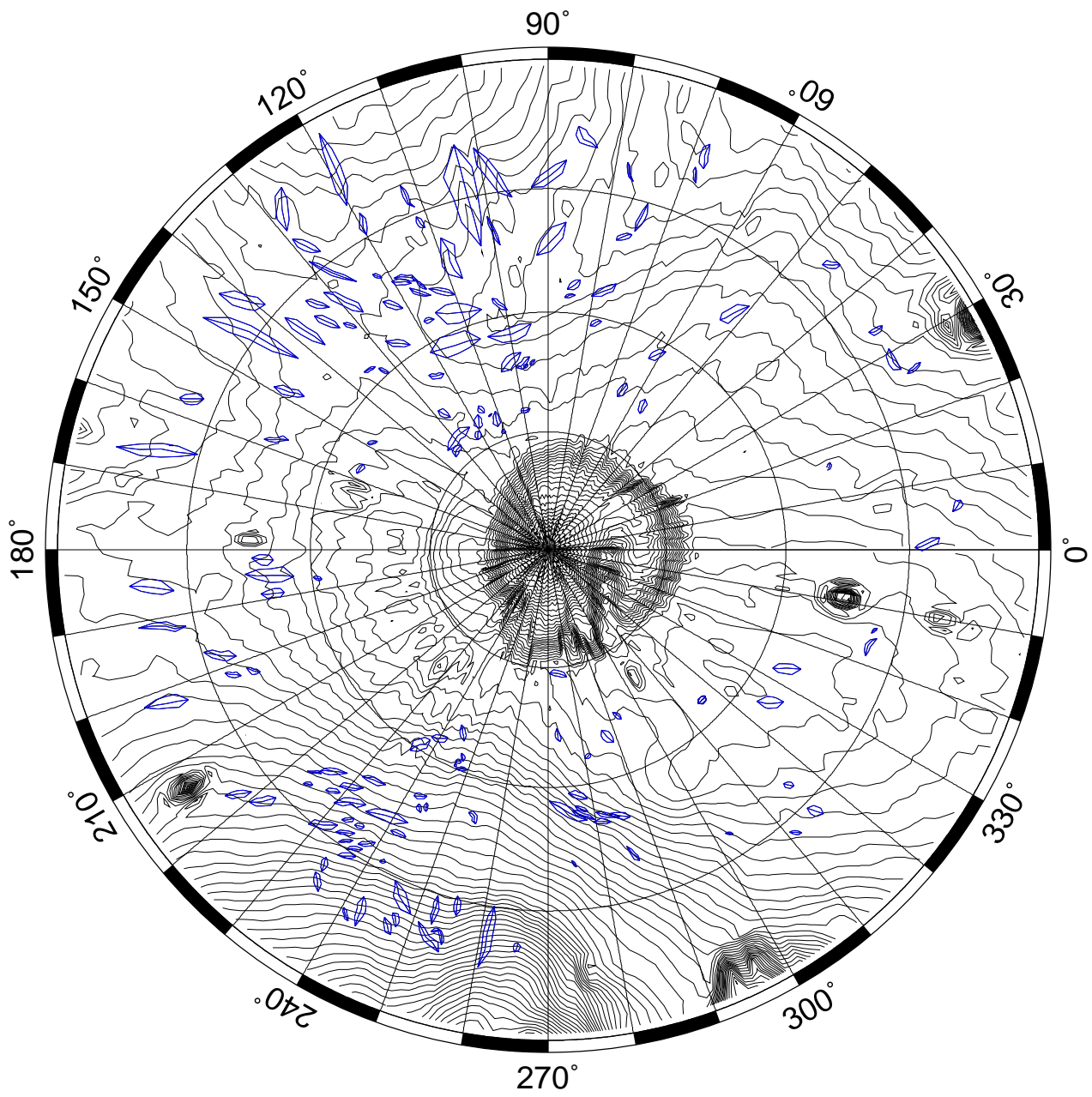
Physical Characteristics:

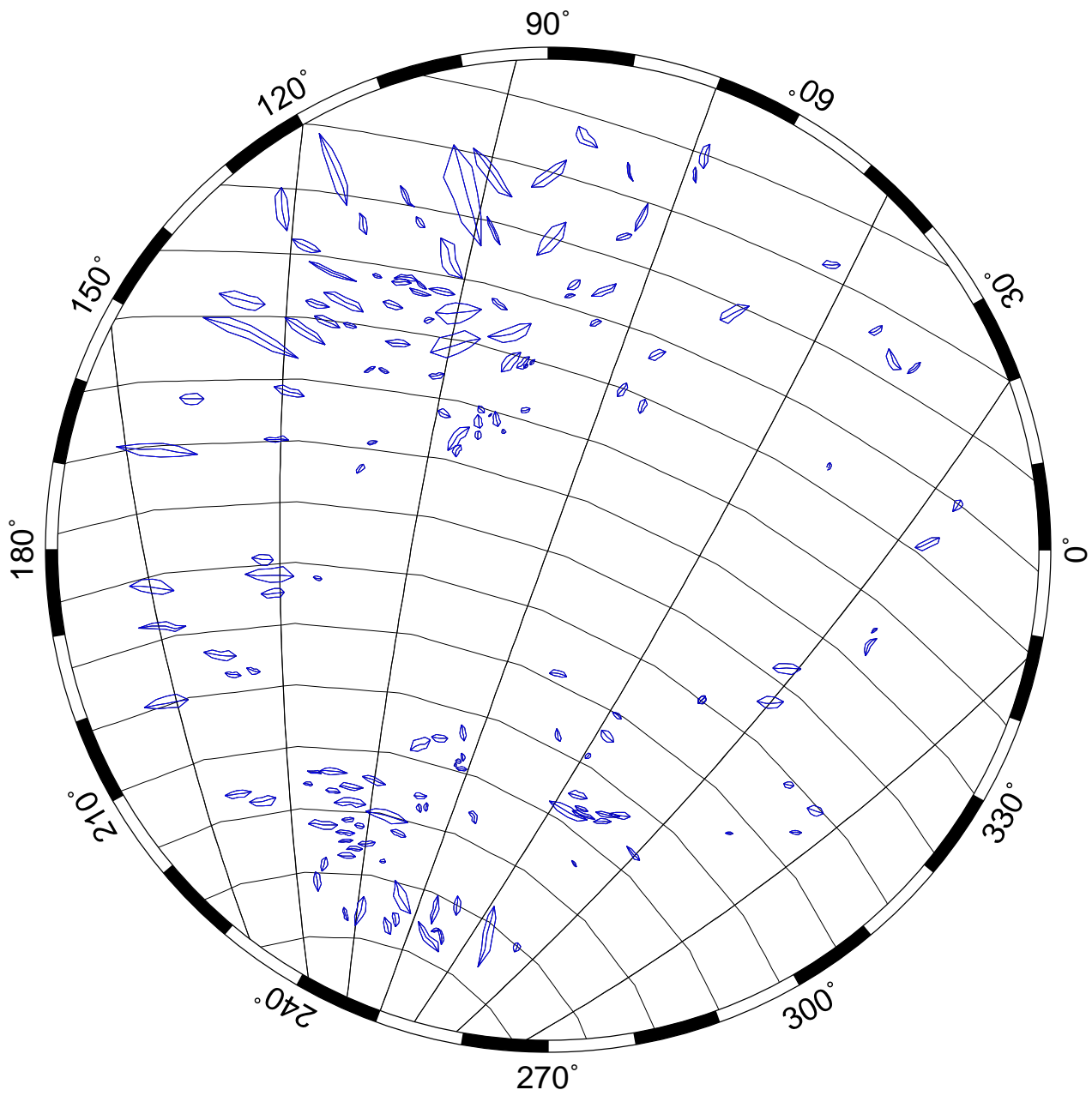
25.9 kg, 30.9 W (avg.), 34.9 W (peak)

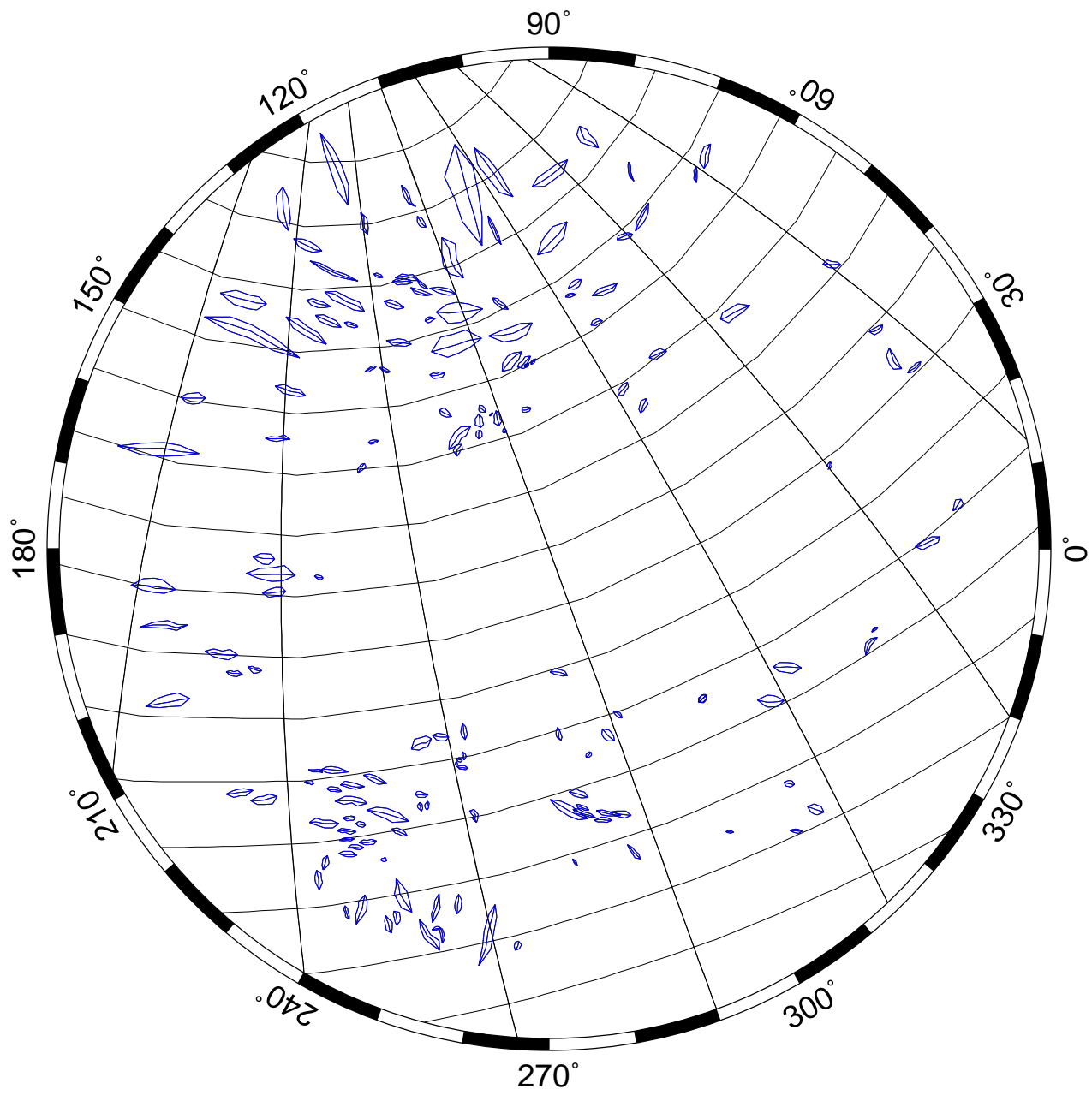


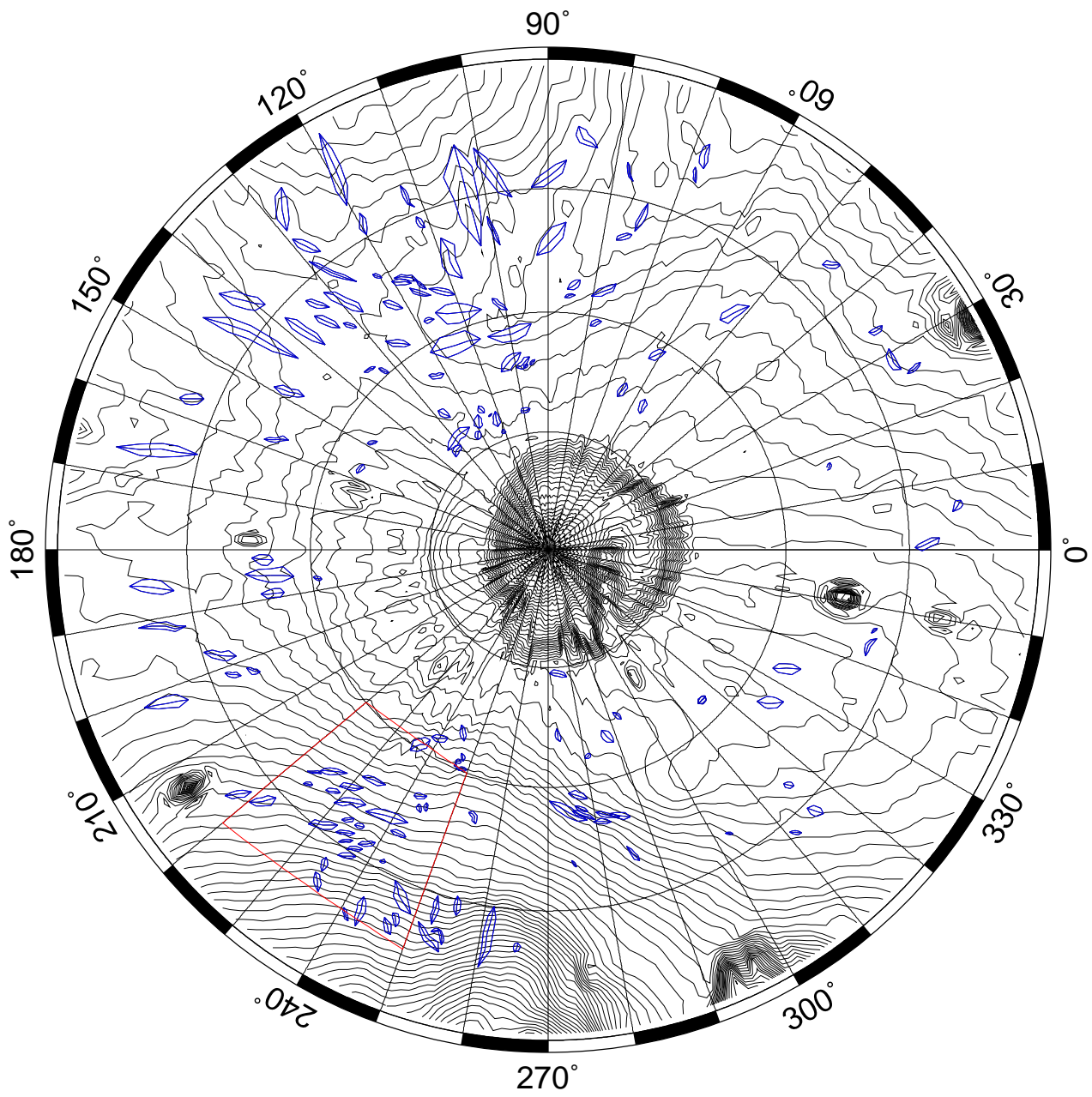


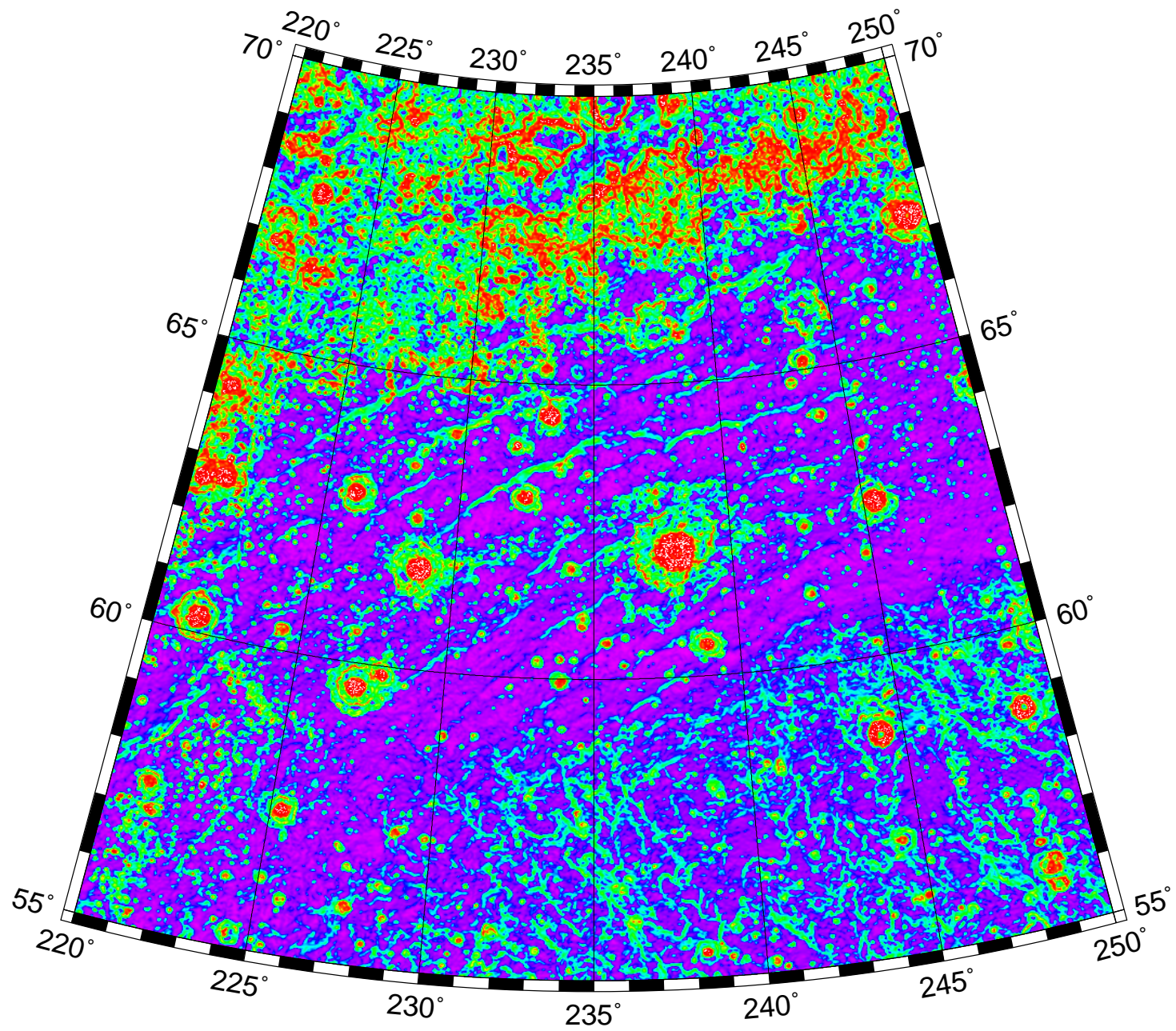


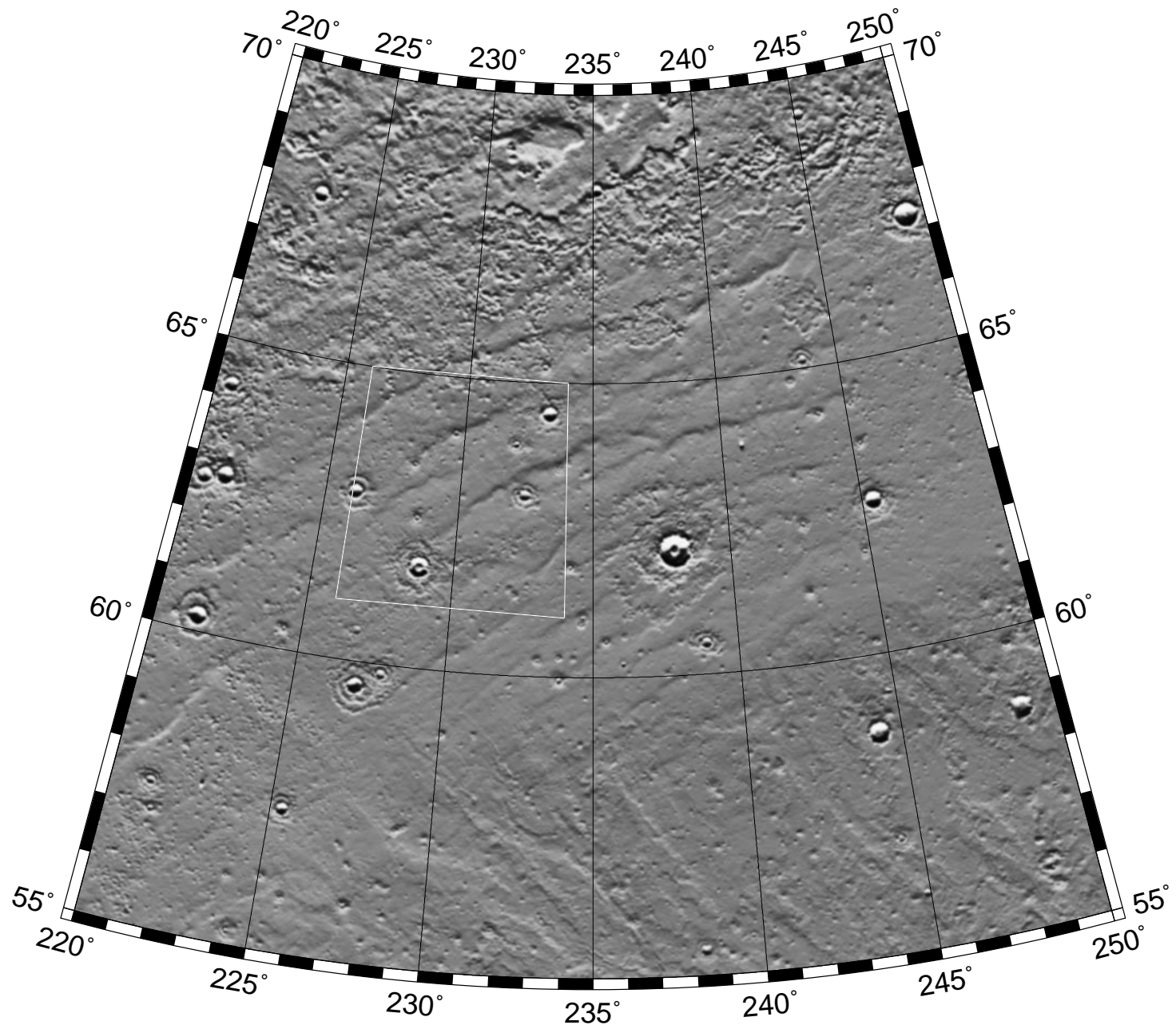


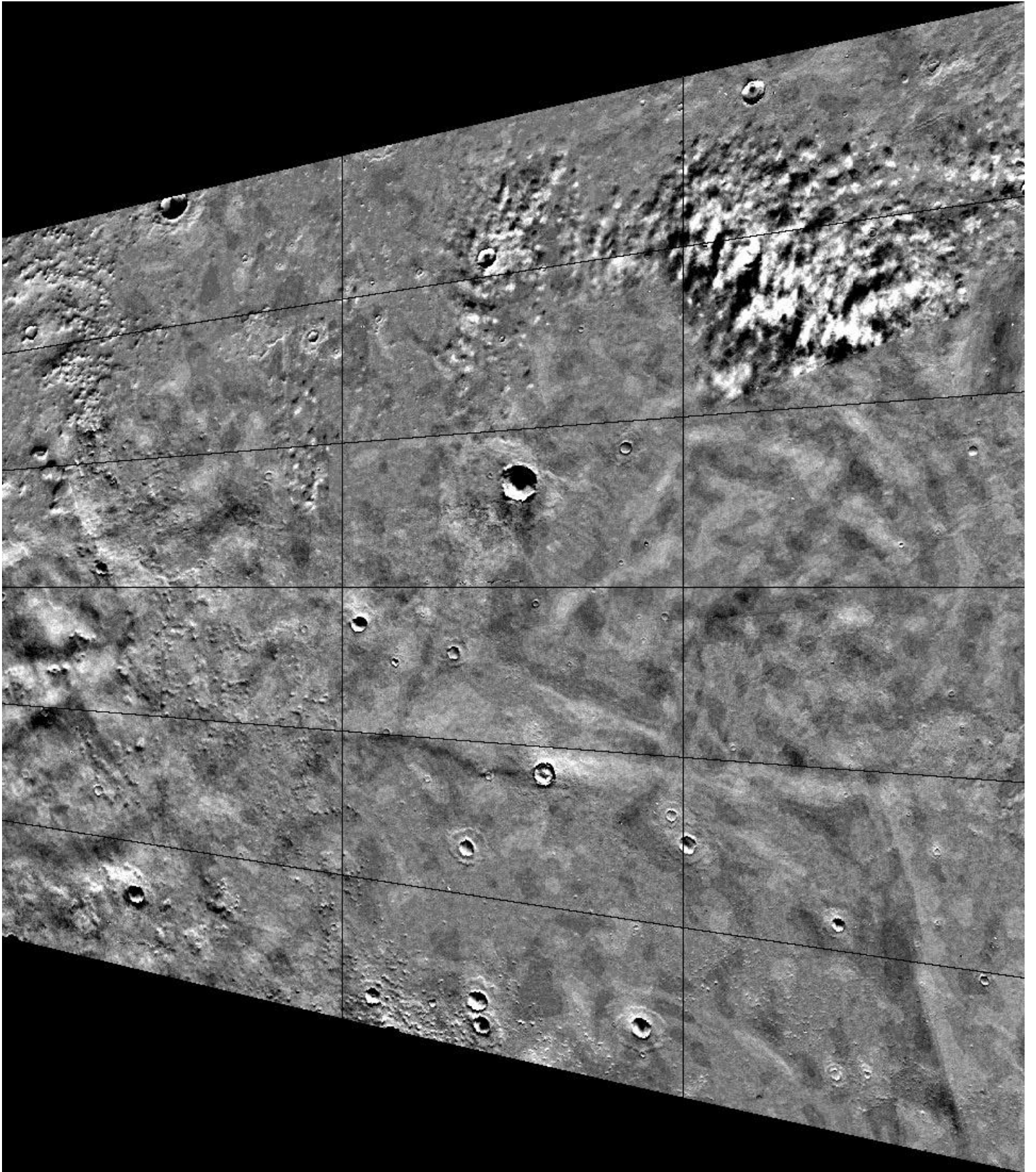


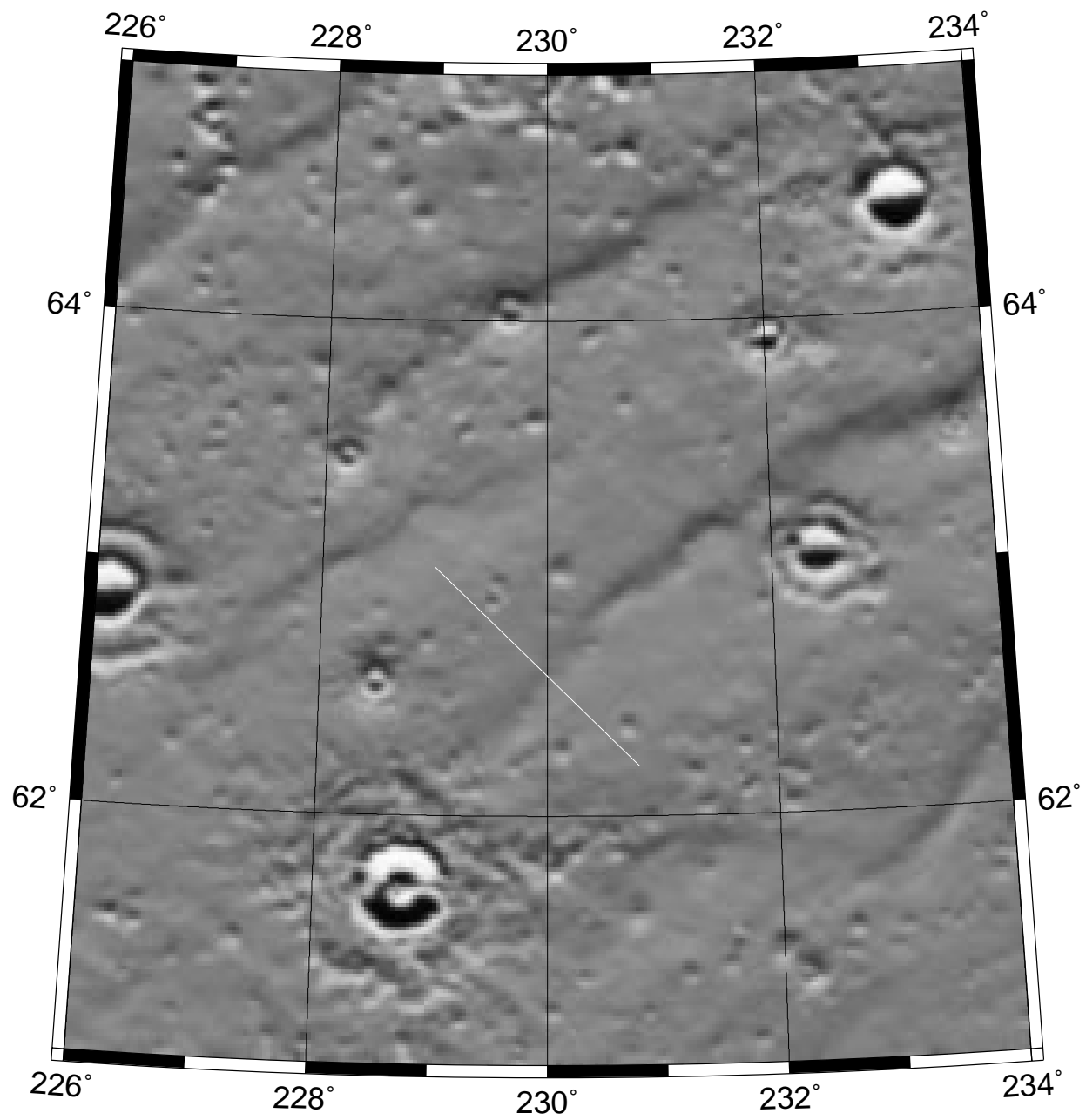


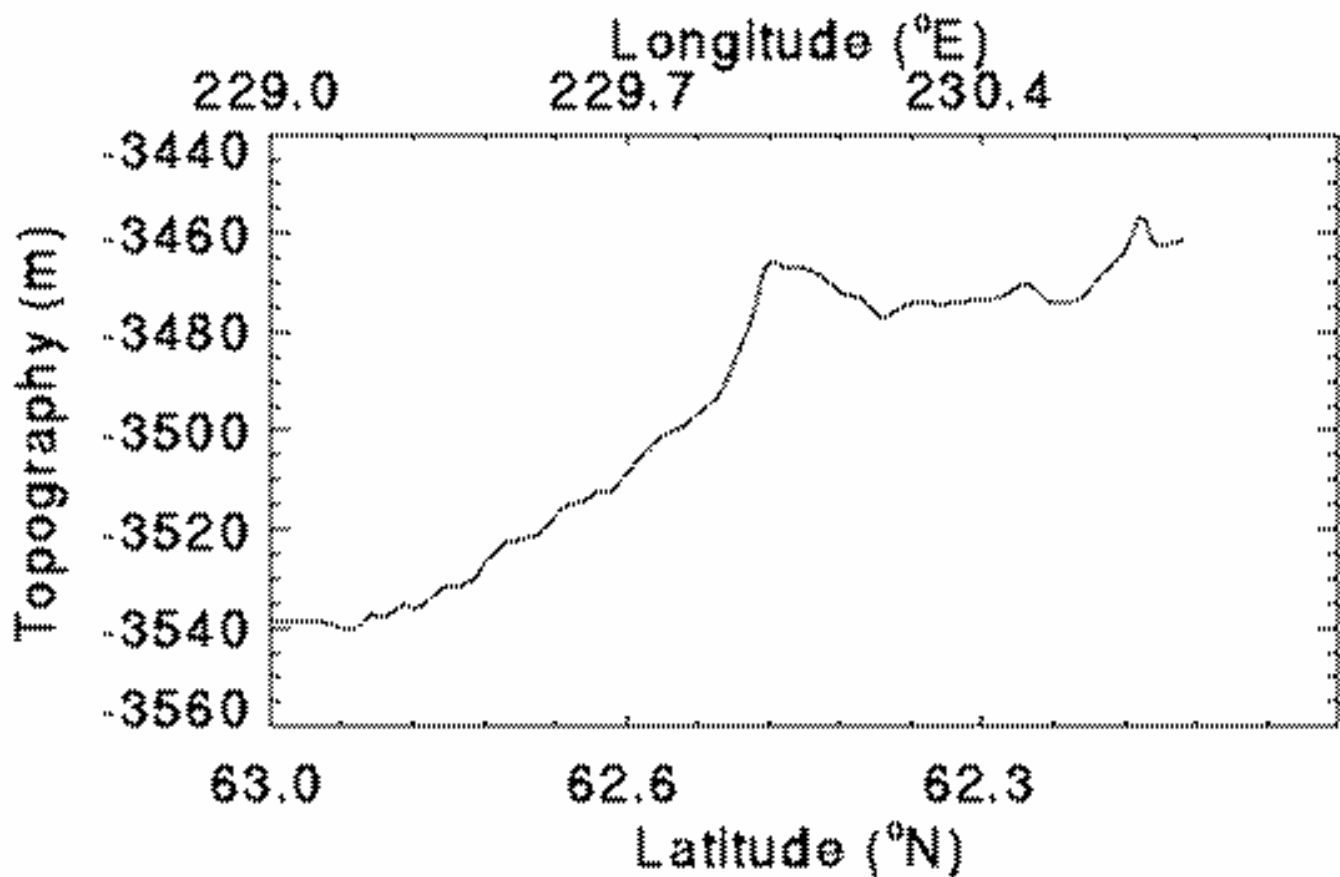
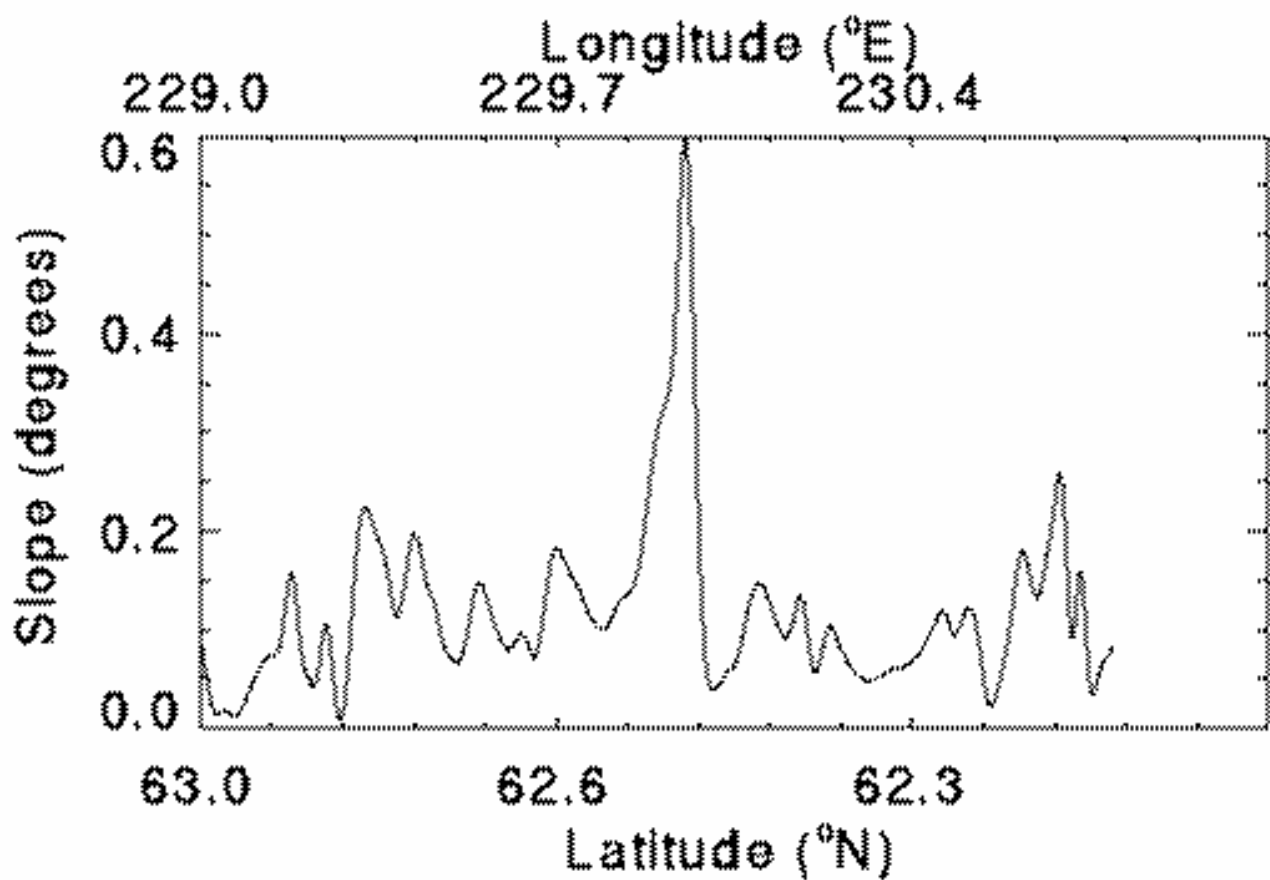












Future Work

Examine high resolution images

Analyse profiles

Shorelines hypothesis?

Quantify relation to stress centres

Dissemination of Work

Continue collaboration with mentor and
MOLA team

Present preliminary work at MOLA team
meeting, Boulder, September

Present work at Fall AGU conference,
San Francisco, December

Eventually publish in peer-reviewed literature
Chapter in thesis