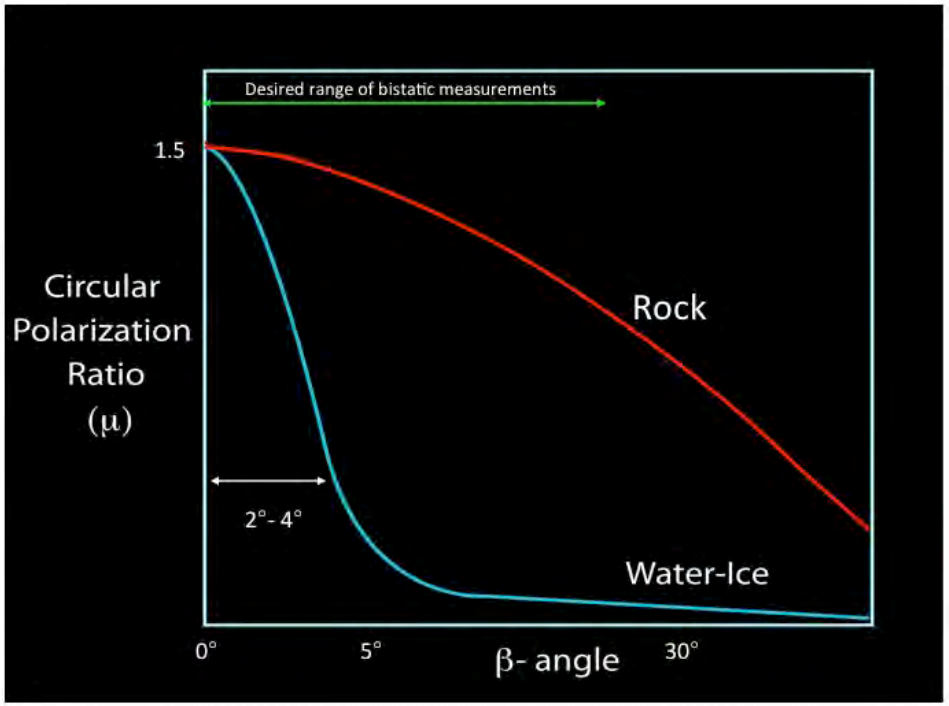
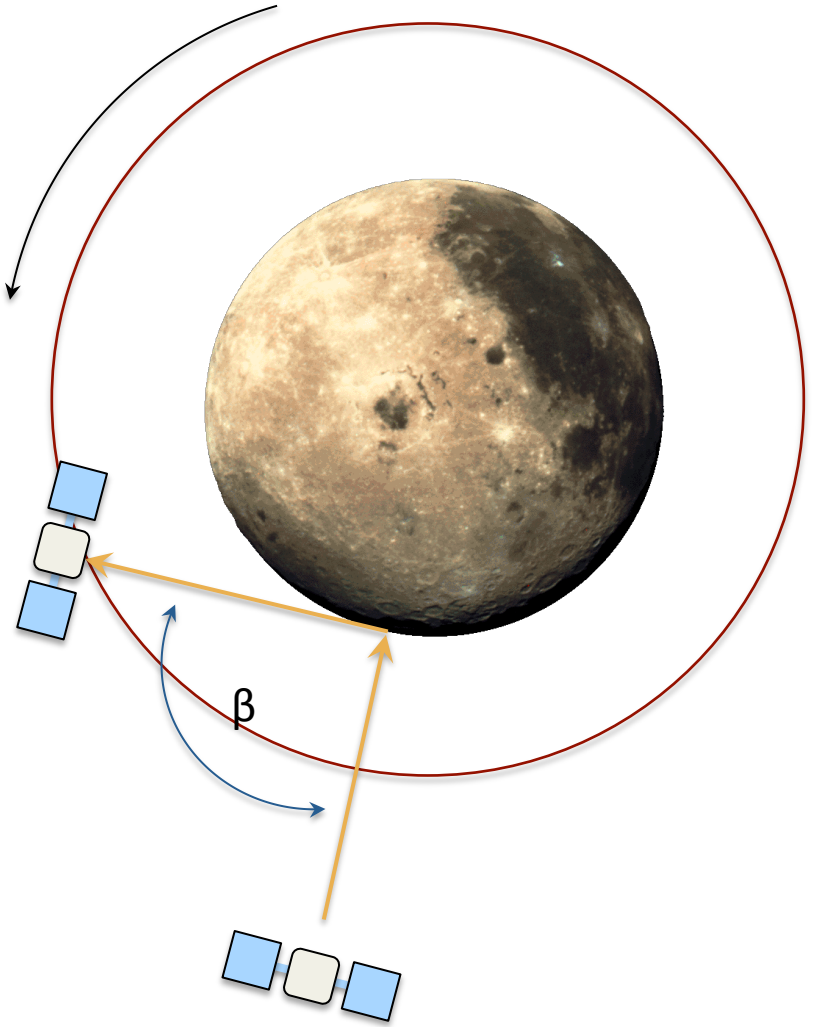
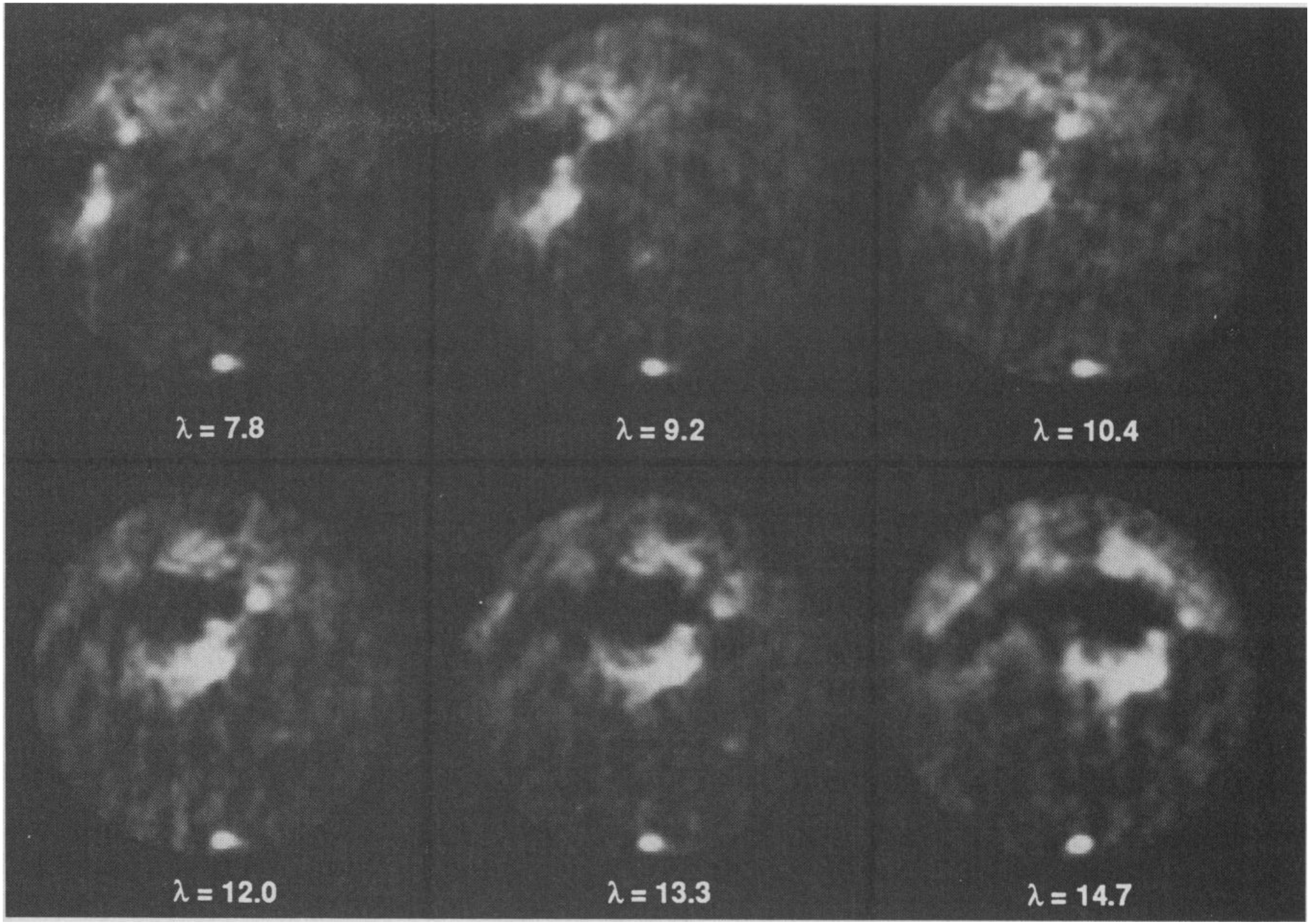
Future radar techniques:

1. Two bistatic radars (orbital)
   - Distinguish nearly pure ice from rocks
2. Ground penetrating radar (rover)
   - Detect depth to ice layer(s)
3. P-Band (70 cm) radar (orbital)
   - Search for deeper deposits of ice

Bistatic radars:



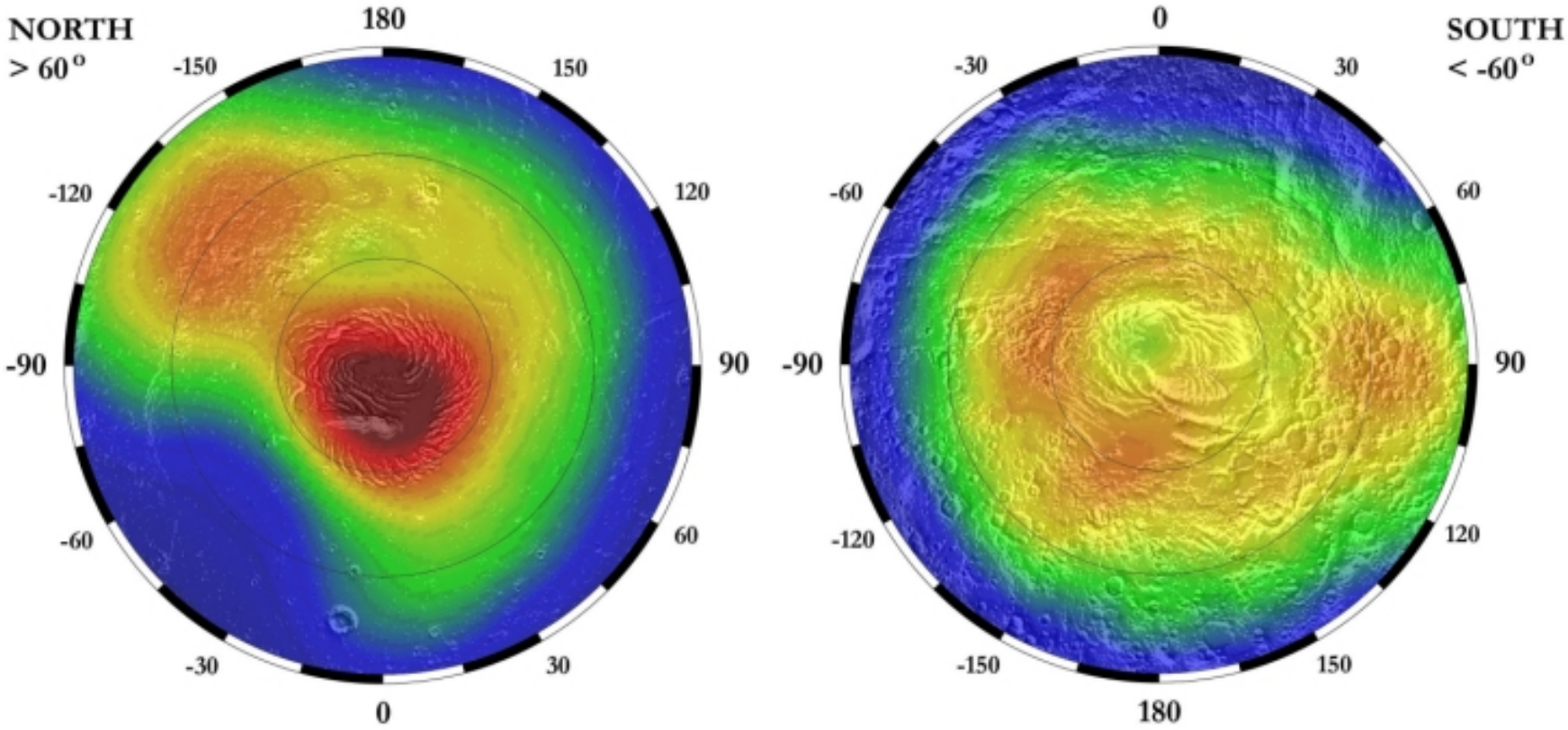



λ = 7.8
λ = 9.2
λ = 10.4
λ = 12.0
λ = 13.3
λ = 14.7

Water Equivalent Hydrogen Abundance

0% 12.5 25 37.5 50% 62.5 75 87.5 100%

Los Alamos NATIONAL LABORATORY



Distribution of Water on Mars: Overlay of water equivalent hydrogen abundances and a shaded relief map derived from MOLA topography. Mass percents of water were determined from epithermal neutron counting rates using the Neutron Spectrometer aboard Mars Odyssey between Feb. 2002 and Apr. 2003.

Reference: Feldman W. C., T. H. Prettyman, S. Maurice, J. J. Plaut, D. L. Bish, D. T. Vaniman, M. T. Mellon, A. E. Metzger, S. W. Squyres, S. Karunatillake, W. V. Boynton, R. C. Elphic, H. O. Funsten, D. J. Lawrence, and R. L. Tokar, The global distribution of near-surface hydrogen on Mars, *JGR-planets*, submitted July 2003.

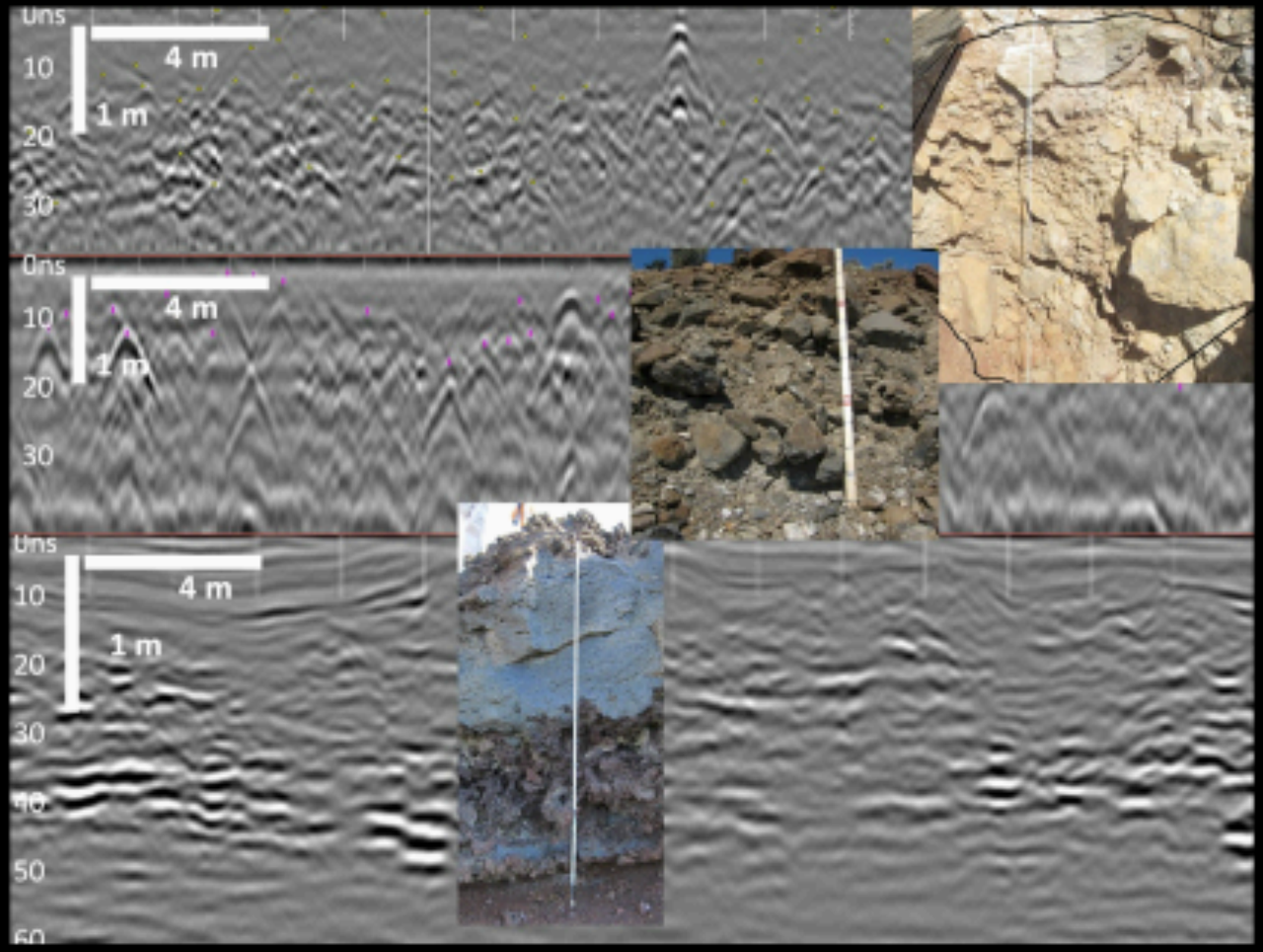
These data were generated by the Planetary Science Team at Los Alamos: B. Barraclough, D. Bish, D. Delapp, R. Elphic, W. Feldman, H. Funsten, O. Gasnault*, D. Lawrence, S. Maurice*, G. McKinney, K. Moore, T. Prettyman, R. Tokar, D. Vaniman, and R. Wiens. * Also at Observatoire Midi-Pyrenees, France

The neutron spectrometer aboard Mars Odyssey, a component of the Gamma-ray Spectrometer suite of instruments, was designed and built by the Los Alamos National Laboratory and is operated by the University of Arizona in Tucson. The Mars Odyssey mission is managed by the Jet Propulsion Laboratory.

Ground penetrating radar: Comparing GPR Signatures from Different Environments

Lunar Polar Science & Exploration

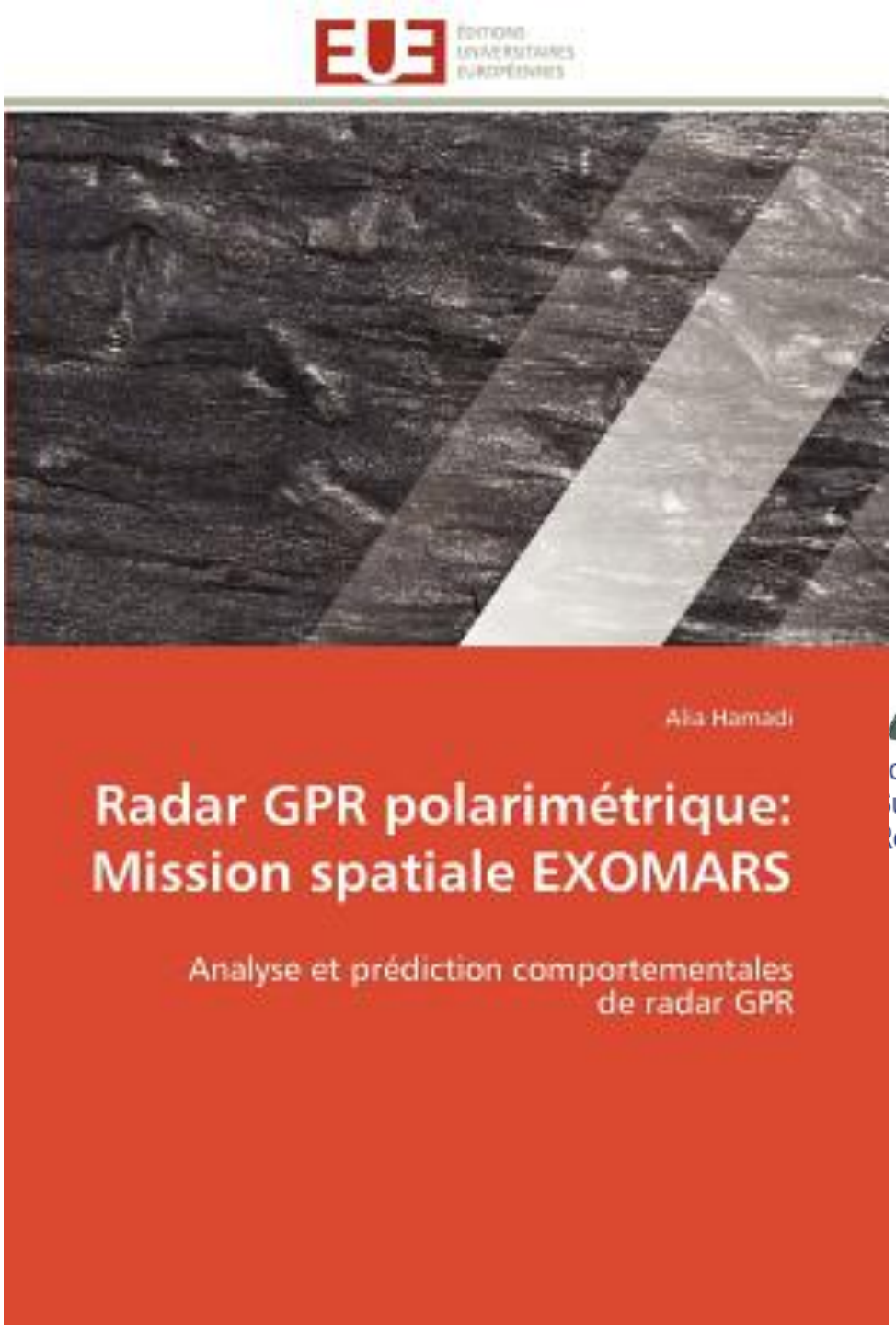
Efforts like those shown on Previous Page Can Quantify Visually Different Signatures for Multiple Environments, Thereby Allowing them to be Distinguished Using GPR

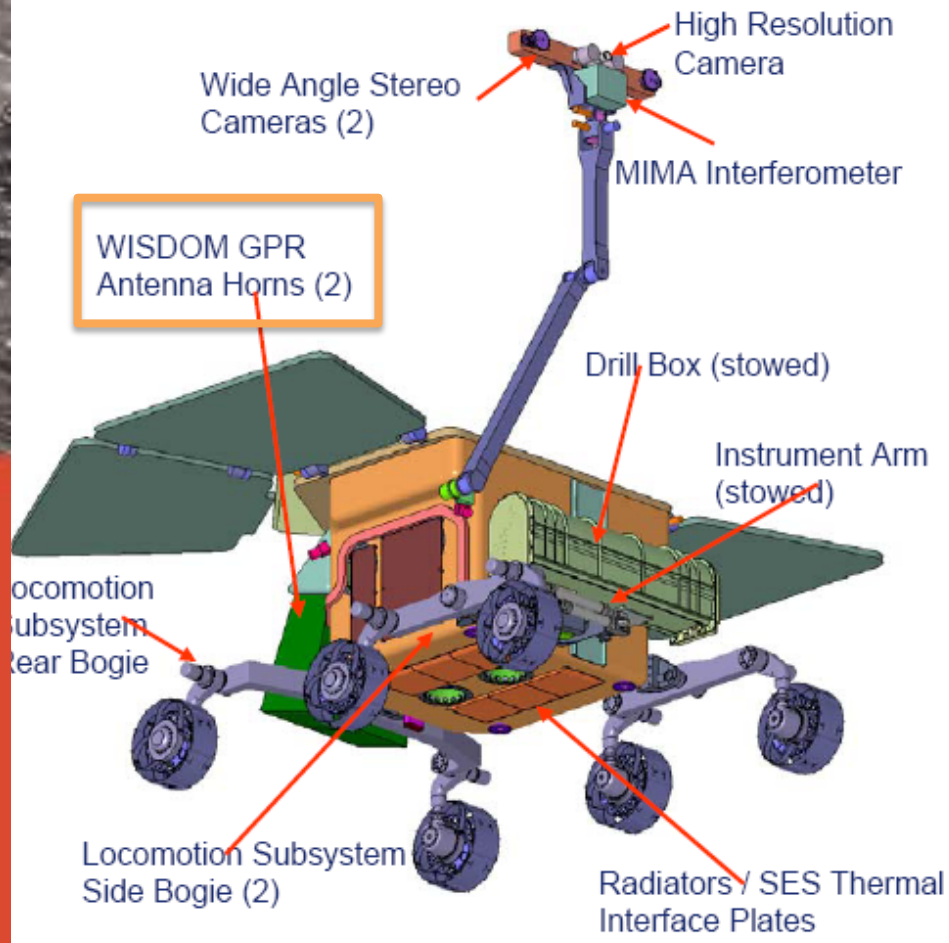


Meteor Crater, Ejecta

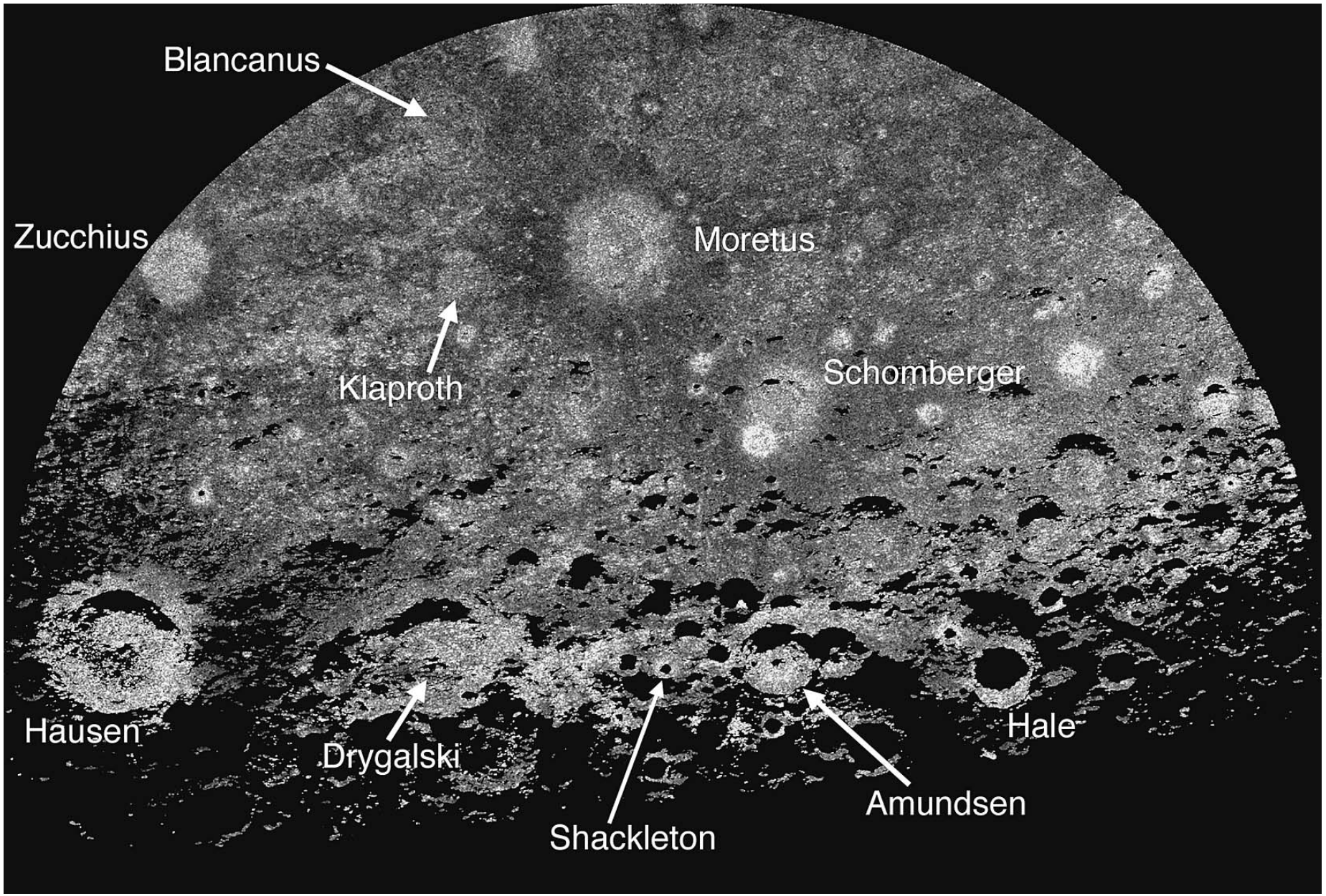
Sunset Crater, Aa flow

Columbia Plat., Flood Basalt


Alia Hamadi
Radar GPR polarimétrique: Mission spatiale EXOMARS
Analyse et prédiction comportementales de radar GPR


High Resolution Camera
Wide Angle Stereo Cameras (2)
MIMA Interferometer
WISDOM GPR Antenna Horns (2)
Drill Box (stowed)
Instrument Arm (stowed)
Locomotion Subsystem Side Bogie (2)
Radiators / SES Thermal Interface Plates

P-Band radar:


Blancanus
Zucchius
Moretus
Klaproth
Schomberger
Hausen
Drygalski
Shackleton
Amundsen
Hale