outflow channel. Hesperian-aged (?) outflow channel. Dike-related vents; evidence for phreatomagmatic eruption and rim glacial deposits at the graben. Examine floor and evidence for multiple events and role of groundwater. Possible residual ice on the floor of the channel. From Joe Levy. RM

39. Nilosyrtis Mensae: (35.0°N, 71.0°E) Complex LVF/LDA stratigraphy along the dichotomy boundary. Evidence for multi-stage formation of extensive glacial deposits; sampling could provide chronology for recent climate change and resulting glacial landforms.

40. Olympus Mons Caldera Floor: (18.3°N, 133.0°W) Age of Tharsis volcanism; Caldera wall stratigraphy, chronology, atmospheric dust stratigraphy, ash deposition. Landslide deposits along the caldera wall. Seismic studies and mass spectrometer for possible gas venting.

41. Milankovic Crater: (55°N, 146.5°W) Rare large impact crater within the northern lowlands (> 40 km); Analysis of excavated material from the northern lowlands and adjacent high-latitude volatile-rich mantling and related deposits.

42. Kasei Valles: (21.0°N, 73.8°W) Massive streamlined morphology gives access to Noachian/Hesperian fluvial deposits; Stratigraphic analysis of channel walls; Channel is sourced from the northern extent of Vallis Marineris, which could yield insight into more regional processes. Evidence for fluvial activity, glacial scour, and subsequent lava flows.

43. Vastitas Borealis Formation: (65.7°N, 20.2°E) Classic northern lowlands terrain; Possible sublimation residue for outflow channel effluent; extensive polygon development; Latitude-dependent mantling deposits; Context for Mars Phoenix analysis.

44. T-Shaped Valley: (37.6°N, 24.0°E) Massive glacial deposits along the dichotomy boundary; Multiple converging flows from various localized sources; Meteorological study could address the recent conditions along the dichotomy boundary; Possible Late Amazonian glacial ice preserved.

45. Isidis Basin Floor: (12.0°N, 88.5°E) Possible flooding remnants from a Noachian and Hesperian northern ocean; Volcanic input from Syrtis Major; Was this a major part of a northern lowlands ocean?

46. Utopia Basin Floor: (43.8°N, 117.0°E) Extensive access to patterned ground and nearsurface volatiles; Examine distal parts of the Elysium lahar deposits; Corroborative studies to go along with VL2 analyses; Possible preserved ice from Early Amazonian.

47. Hecates Tholus: (32.0°N, 150.3°E) Unique concentration of young (Hesperian/Amazonian) valley networks, in the proximity of extensive Hesperian volcanic activity; Access to nearby northern lowlands; Some volcanism may be Amazonian.

48. Peak Magnetic Anomalies: (60.0°S, 175.0°E) Geophysical analysis could reveal details of an early Martian magnetic field; classic Noachian cratered terrain could yield insight into the composition of Mars in its first billion years; Major goal would be to link surface geology to any evidence of subsurface magnetism and magnetic carriers.

49. Hesperian Calderas: (59.4°S, 60.7°E) Volcanic record for middle-Mars history; Meteorological study could document interaction between Hellas and South Pole; Examine key part of Martian timeline; understand Hesperian volcanic processes and related valley networks.

50. Hesperia Planum: (23.3°S, 110.6°E) Potential comparison with classic lunar mare terrain; Structural investigation of wrinkle-ridge formation; Examination of classic unit of the Mars timeline.

51. Huygens Ridge: (12.3°S, 66.3°E) Access to exhumed dike/Potential Hesperian Ridged terrain; Geochemical analyses of

intrusive volcanic material; This dike system may be feeder for major Hesperian ridged plains volcanism.

52. Argyre floor deposits: (51.5°S, 41°W) Potential analyses of volatile deposits from south polar ice sheet; primary impact record for large impact basin/large impact melt-sheet; Amazonian formation of small-scale fluvial features. Possible eskers in southern part of basin; Assess evidence for aqueous flooding and shorelines.

53. Thaumasia Valley Networks (Warrego): (38.6°S, 89.4°W) Post-emplacement modification of classic Noachian valley networks; Access to ice-rich crater-fill material; Geophysically probe classic thrust-like structure at edge of Tharsis rise.

54. Syria Planum: (7.7°S, 100.5°W) Structural evolution of Tharsis; Close proximity to western most extent of Valles Marineris; This region is highest point on Tharsis and key to its early volcanic evolution.

55. Proctor Crater: (47.5°S, 30.2°E) Extensive dune field on crater floor; Study of recent dune formation and migration and relation to climate change; Stratigraphic analysis of Noachian crust.

56. White Rock: (8.0°S, 25.2°E) Field analysis of high-albedo crater floor deposit; Eolian modification history of enigmatic surface unit; Thought to be key to early mineralogy and resurfacing.