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Alignments mapping and structural analysis of western sector of Nepehntes Mensae, Mars.

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Nepenthes Mensae region is northernward to the Martian dichotomy at the western hemisphere. This region is characterized by (1) its southern edge marked by some cents meters high scarp with a clearly straight NE-NW direction, probably related to tectonic activity; (2) its irregular topography sloping to the northern martian lowlands; and (3) abundance of chaotic, etched and heavily degraded terrains. On the western sector of Nepenthes Mensae, deltas and a possible fissural volcano were described (Irwin et al., 2005; de Pablo & Pacifici, 2006), related to scarps and alignments. Moreover, scarps, mesas, chaotic and degraded terrain shows alignments following other directions. All those characteristics could indicate the important role of tectonics in the origin and evolution of this Martian region. We have conducted a detailed geomorphological alignments cartography of western sector of Nepenthes Mensae. We used both high resolution MOC images and THEMIS and HRSC images, together with a MOLA-derived digital elevation model. Study sector cover an area of about 350.000 km2 between 3S-6N and 118-133E. Mapped alignments include: (1) valleys, (2) scarps, (3) mesas and hills edges, and (4) others. Here we show resultant alignments map and a preliminary structural analysis.

References: de Pablo & Pacifici, 2006. 1st EuroPlanet Meeting. Abstract EPSC2006-A-00447. Irwin, et al., 2005. JGR, 110. 1029/2005JE002460