



Tension Fractures as origin of Martian North Polar Cap spirals

A. **Kostrikov** (1), I. Garagash (2)

(1) Laboratory for Comparative Planetology, Vernadsky Institute, Moscow, Russia, (2) Institute of Earth Physics, Moscow, Russia (kostrikov@geokhi.ru)

A hypothesis for the origin of helical structure of troughs on the surface of Martian north polar cap is proposed. It follows from the laboratory experiments and theoretical analyse that being defreezed at its bed the Martian north pole ice sheet began to transform, as a matter of fact, to an ice body resembling the ice shelf. This transformation was accompanied by drastic amplification of radial tension that came to the breaking of ice entirety, the emergence of a system of crevasses along spiral glide lines all over the ice sheet. After bed temperature fell down and the collapse ceased, the weakened splitted parts of the ice sheet began to undergo a weathering. This process transformed the helical structure of crevasses to the helical structure of troughs.