Formation process of the rampart crater as estimated from MOC images

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Ejecta deposit of fresh rampart craters is composed of two separate ejecta units; the inner lobe deposit and the outer lobe deposit and this means two independent deposition sequences took place during the single cratering event (Demura et al, 1999,Kurita & Demura 2000). By detailed inspections on the high resolution images of the rampart craters by MOC/MGS we can identify the following characteristics common to fresh craters;

1) On the surface of the inner lobe there remain erosional scratches radiating from the center of the crater.

2) From the jump distance of the scratch across the cliff flow velocity of the outer lobe is estimated as 50-80m/sec.

3) At the termination region of the scratch no block material can be identified, which should be responsible for a scratcher. These strongly suggest the ejecta material which constitute the outer lobe is composed of permafrost blocks.