

Radar observation of impact craters using COSMO-SkyMed

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Abstract

COSMO-SkyMed is a constellation of satellites operated by the Italian Space Agency which performs radar observations of the Earth surface with a state of the art Synthetic Aperture Radar (SAR) instrument.

We describe the recent case of high resolution radar images collected over a newly discovered impact crater; their analysis was very fruitful in terms of geo-morphological analysis of the features surrounding the crater and the search for secondary impacts.

This early experience suggests novel applications of COSMO-SkyMed data such as the characterization of impact craters from space and the possibility of setting up an automatic recognition program for discovering small impacts in unaccessible regions. Moreover it could be of relevance for the ESA Space Situational Awareness Program (SSA), whose aim is to provide "timely and quality data, information, services and knowledge regarding the environment, the threats and the sustainable exploitation of the outer space surrounding our planet", because small NEOs (Near-Earth Objects) on a collision course with the Earth (e.g. the well known case for 2008TC3) are likely to become the primary source of alerts coming from the future operational SSA NEO Data Center.

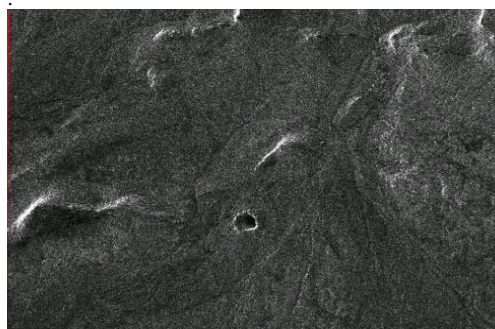


Figure 1: Radar image of the newly discovered impact crater reported in the text (Copyright ASI 2009).

References

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