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River ice monitoring from space; advances in satellite SAR technology and effects on application potential

By

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Images acquired by satellite SAR systems such as RADARSAT-1 and Envisat ASAR have demonstrated considerable potential for application in support river ice management. In this paper we will introduce a new generation of SAR satellites, e.g. ALOS PALSAR (launched January 2006), RADARSAT-2 (to be launched March 2007) and RADARSAT-C (launch > 2012). We will review the advanced technical capabilities of each of these satellites and discuss how these are expected to improve the image products in terms of potential for application to river ice management. The most significant advances in satellite SAR technology relate to the frequency and/or polarization of operation and the revisit frequency. The potential of a satellite SAR in support of river ice management is a function of its capacity to image relevant ice cover characteristics including % cover, ice type and ice thickness.