Satellite Radar Measurements of Land Subsidence

D. van Halsema — TNO-Physics and Electronics Laboratory, P.O.Box 96864, 2509 JG The Hague, The Netherlands
vanHalsema@fel.tno.nl
http://www.tno.nl/instit/fel/

M.W.A. van der Kooij — Atlantis, 1827 Woodward Dr, K2C OP9 Ottawa, Canada

Abstract

Abstract -- The potential of satelliteborne interferometric measurements for the mapping of slow land subsidence has been investigated. Two test sites, covered by the ERS-1 satellite, were selected in the Netherlands: the provinces of Groningen and Zeeland. In situ measurements on the weather and the actual subsidence were gathered. It will be shown that under favorable conditions measurement accuracy's for land subsidence in the range of mm's are feasible. Atmospheric effects together with temporal decorrelation are the major limitations to the accuracy of the technique for this type of long term measurement. To circumvent these problems in the future time series of INSAR observations will be analysed. An outline of the procedures will be given.

Keywords: Land subsidence, SAR, interferometry