Geophysical Research Abstracts
Vol. 13, EGU2011-6258, 2011
EGU General Assembly 2011

Timing of substorm onset from ground-based Pi2 measurements: Comparison of methods

Tobias Schramm (1), Ferdinand Plaschke (1), Karl-Heinz Glassmeier (1,2), Ian R. Mann (3), I. Jonathan Rae (3), and Lars Guicking (1)

(1) Institut für Geophysik und extraterrestrische Physik, TU Braunschweig, Germany, (2) Max-Planck-Institut für Sonnensystemforschung, Katlenburg-Lindau, Germany, (3) Department of Physics, University of Alberta, Edmonton, Alberta, Canada

The determination of substorm onset times on the ground and in space is crucial for the understanding of the temporal development of substorms and the physical processes lying beneath. In the past different methods have been used to extract onset times from ground-magnetometer measurements under the assumption, that the onset can be defined by an increase in Pi2 activity on ground caused by the transient response of the magnetosphere to substorm processes. We present a detailed comparison of results obtained by methods based on wavelets and on the deconvolution of the measured time series, respectively. Both methods are applied to measurements from the Canadian magnetometer array CARISMA (www.carisma.ca).