



## Authors

*Presentations***S1 Poster Flashes (5') + Discussion (15')**

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**Advancements in the Usage of Envisat Individual Echoes (IEs)****Stefano Vignudelli<sup>1</sup>, Ron Abileah<sup>2</sup>, Andrea Scozzari<sup>3</sup>**<sup>1</sup>Consiglio Nazionale delle Ricerche (CNR-IBF) Italy; <sup>2</sup>Jomegak; <sup>3</sup>Consiglio Nazionale delle Ricerche (CNR-ISTI) Italy

The Envisat radar altimeter had a PRF of around 1800 Hz, which was intended to provide the maximum number of independent observations per second. The conventional processing and analysis of sea surface returns uses incoherent sums for noise averaging. Standard Envisat altimeter data are averaged at a rate of 20 Hz. However, a provision was made in Envisat for an 'Individual Echoes' (IE) recording mode that collects 1-second bursts of 1984 x 128 range bins of individual complex echo returns every 3 minutes. This acquisition mode was designed to support experiments beyond the conventional methods. A large collection of IE data packets has been provided by the European Space Agency and is now catalogued on disk. The available IE data cover almost all sorts of water targets, including open ocean, coastal zone and inland water. The analysis was primarily conceived for inland water study, but it's clear that the development of tools for the inland water context also supports the observation of the coastal zone. Matlab routines were developed for processing IE data in order to investigate ways of exploiting the complex data. In this work, we explain the current implemented capabilities, show evidence of observed features from selected case-studies in coastal zone, rivers and estuaries, discussing the impact of those aspects, such as the variability of the surface roughness, which are peculiar to the coastal zone.