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SPECTRAL AND COMPOSITIONAL INVARIANCE IN THE 3-D HELIOSPHERE: ULYSSES, WIND & ACE OBSERVATIONS

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In this poster, we present additional details on recent comparative studies of simultaneous SEP observations near Earth and at Ulysses in 2000-2001. We compare in detail the event characteristics using both electron, proton and heavy ion simultaneous measurements obtained by Ulysses and near Earth spacecraft (WIND, ACE and GOES). We carry out the first detailed examination and comparison of elemental spectra and composition in the late decay phase of events in the so-called ‘reservoir’ regions, between spacecraft widely separated in latitude as well as in longitude and radial distance in the heliosphere. The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 263252 and has also been supported by NASA under grants NNH09AK79I and NNX09AU98G (AJT).