

## Atmospheric Correction Inter-comparison Exercise (ACIX)

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The free and open data access policy to Landsat-8 (L-8) and Sentinel-2 (S-2) satellite imagery has encouraged the development of atmospheric correction (AC) approaches for generating Bottom-of-Atmosphere (BOA) products. Several entities have started to generate (or plan to generate in the short term) BOA reflectance products at global scale for L-8 and S-2 missions. To this end, the European Space Agency (ESA) and National Aeronautics and Space Administration (NASA) have initiated an exercise on the inter-comparison of the available AC processors. The results of the exercise are expected to point out the strengths and weaknesses, as well as communalities and discrepancies of various AC processors, in order to suggest and define ways for their further improvement. In particular, 11 atmospheric processors from five different countries participate in ACIX with the aim to inter-compare their performance when applied to L-8 and S-2 data. All the processors should be operational without requiring parametrization when applied on different areas. A protocol describing in details the inter-comparison metrics and the test dataset based on the AERONET sites has been agreed unanimously during the 1<sup>st</sup> ACIX workshop in June 2016. In particular, a basic and an advanced run of each of the processor were requested in the frame of ACIX, with the aim to draw robust and reliable conclusions on the processors' performance. The basic run includes the correction of Rayleigh and aerosol scattering, gas absorption and adjacency effects (only for the processors, it could not be omitted). In the optional run, the participating teams can include all the corrections involved in their AC approaches. The protocol also describes the comparison metrics of the aerosol optical thickness and water vapour products of the processors with the corresponding AERONET measurements. Moreover, concerning the surface reflectances, the inter-comparison among the processors is defined, as well as the comparison with the MODIS surface reflectance and with a reference surface reflectance product. Such a reference product will be obtained using the AERONET characterization of the aerosol (size distribution and refractive indices) and an accurate radiative transfer code. The inter-comparison outcomes will be presented and discussed among the ACIX participants in the 2<sup>nd</sup> ACIX workshop, which will be held on 11-12 April 2017 (ESRIN/ESA). The proposed presentation is an opportunity for the user community to be informed about the ACIX results and conclusions.