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# Evolution of solar wind flows from the inner corona to 1 AU: constraints provided by SOHO UVCS and SWAN data

**Alessandro Bemporad**[1], Olga Katushkina[2], Vladislav Izmodenov[2], Dimitra Koutroumpa[3], and Eric Quemerais[3]

[1]INAF, Turin Astrophysical Observatory, Pino Torinese, Italy (alessandro.bemporad@inaf.it)
[2]Space Research Institute of Russian Academy of Sciences, Profsoyuznaya Str. 84/32, Moscow, Russia
[3]LATMOS-OVSQ, Université Versailles Saint-Quentin, Guyancourt, France

The Sun modulates with the solar wind flow the shape of the whole Heliosphere interacting with the surrounding interstellar medium. Recent results from IBEX and INCA experiments, as well as recent measurements from Voyager 1 and 2, demonstrated that this interaction is much more complex and subject to temporal and heliolatitudinal variations than previously thought. These variations could be also related with the evolution of solar wind during its journey through the Heliosphere. Hence, understanding how the solar wind evolves from its acceleration region in the inner corona to the Heliospheric boundaries is very important.

In this work, SWAN Lyman-α full-sky observations from SOHO are combined for the very first time with measurements acquired in the inner corona by SOHO UVCS and LASCO instruments, to trace the solar wind expansion from the Sun to 1 AU. The solar wind mass flux in the inner corona was derived over one full solar rotation period in 1997, based on LASCO polarized brightness measurements, and on the Doppler dimming technique applied to UVCS Lyman-α emission from neutral H coronal atoms due to resonant scattering of chromospheric radiation. On the other hand, the SWAN Lyman-α emission (due to back-scattering from neutral H atoms in the interstellar medium) was analyzed based on numerical models of the interstellar hydrogen distribution in the heliosphere and the radiation transfer. The SWAN full-sky Lyman-α intensity maps are used for solving of the inverse problem and deriving of the solar wind mass flux at 1 AU from the Sun as a function of heliolatitude. First results from this comparison for a chosen time period in 1997 are described here, and possible future applications for Solar Orbiter data are discussed.