

Prototyping a space weather early warning system based on a Sun-to-belts chain as part of the H2020 SafeSpace project

SafeSpace project team^{1,2,3,4,5,6,7,8}

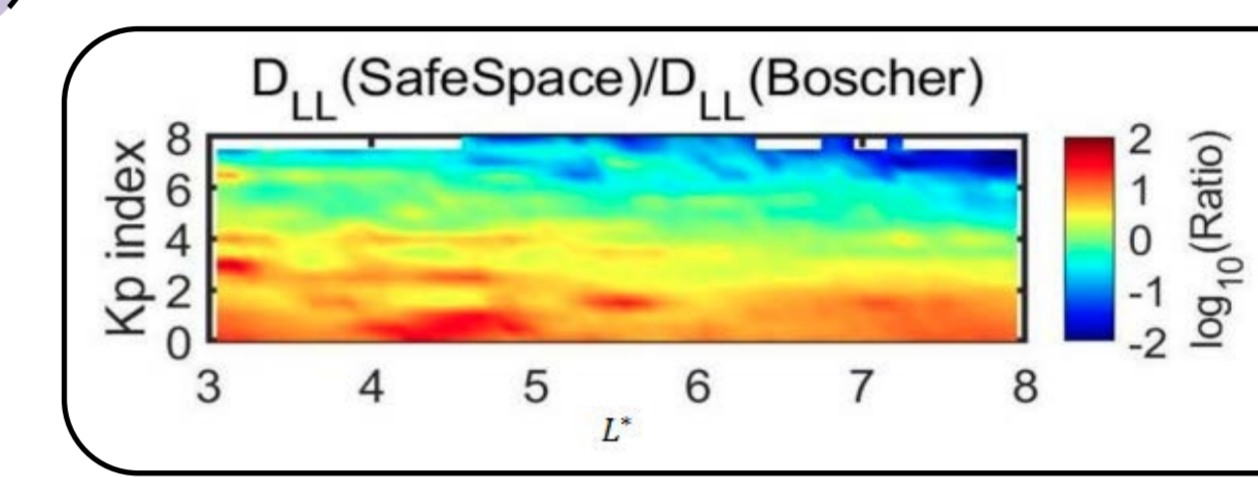
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Advancing **Space Weather** nowcasting and forecasting capabilities. Covering the whole Sun – interplanetary space – Earth's magnetosphere chain.

Prototyping a **Space Weather** warning service by defining tailored particle radiation indicators.

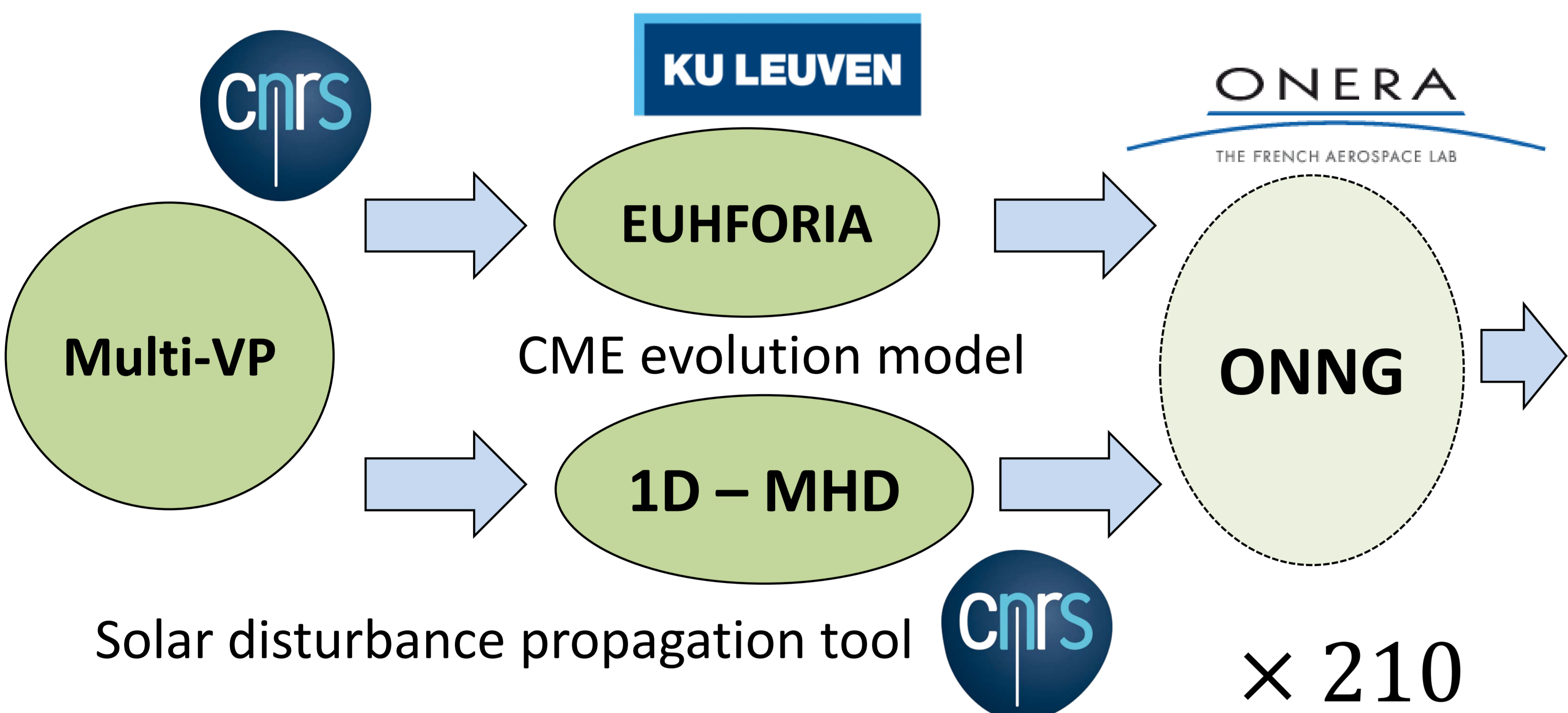
Katsavrias et al. "The" SafeSpace" Radial Diffusion Coefficients Database: Dependencies and application to simulations." *Annales Geophysicae* (2021) Under discussions

Katsavrias et al. "On the interplanetary parameter schemes which drive the variability of the source/seed electron population at GEO." *Journal of Geophysical Research: Space Physics* (2021)

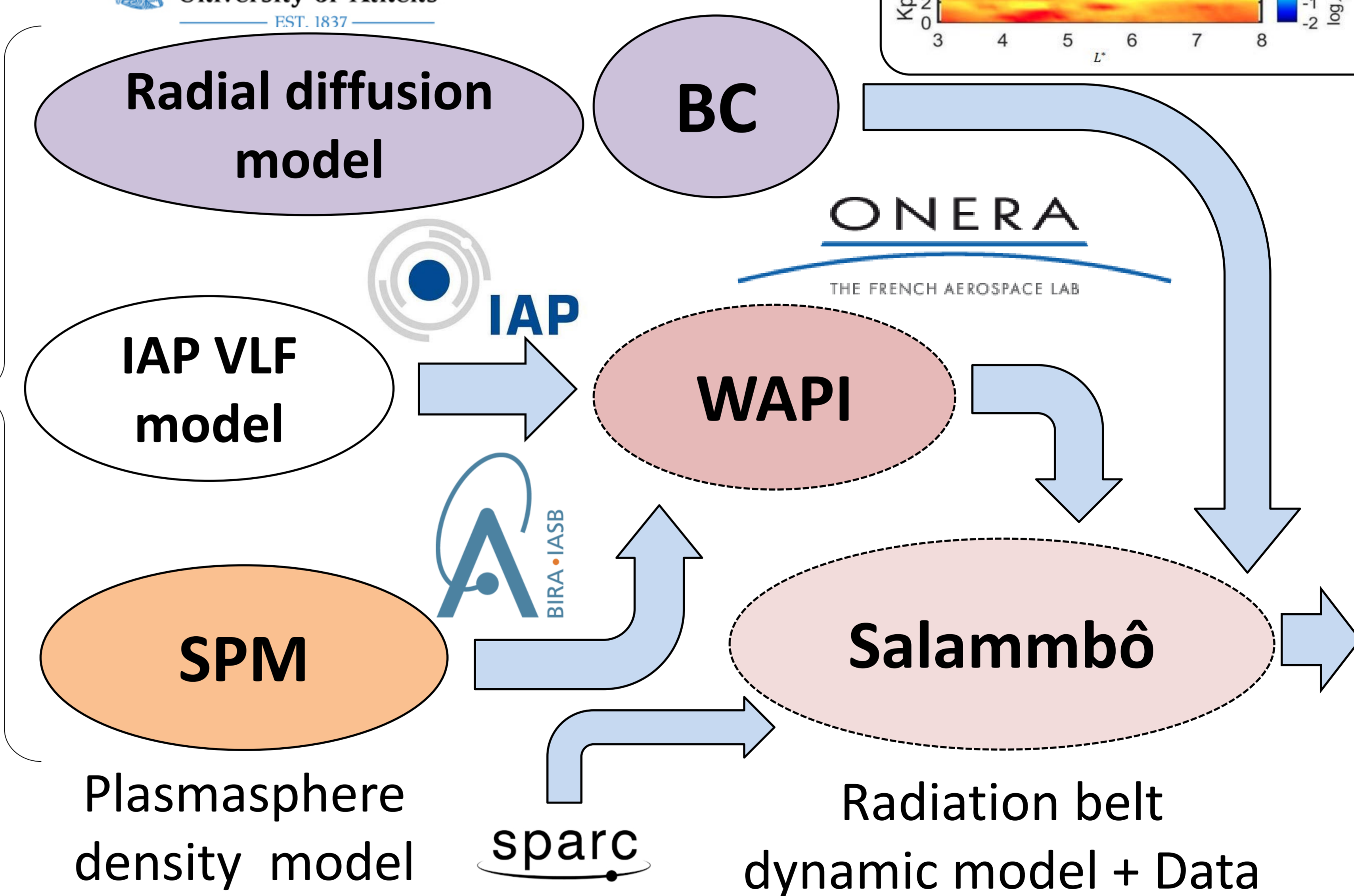


$$J = (V_{sw}, P_{sw}, eBs, IMF)$$

data = GEO/ GOES 13-14-15

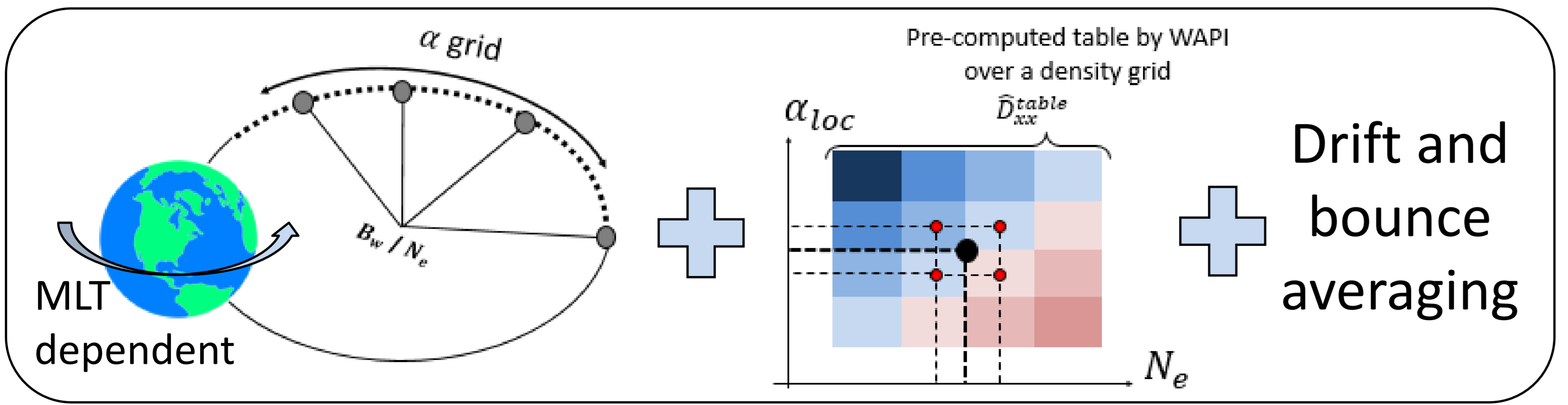
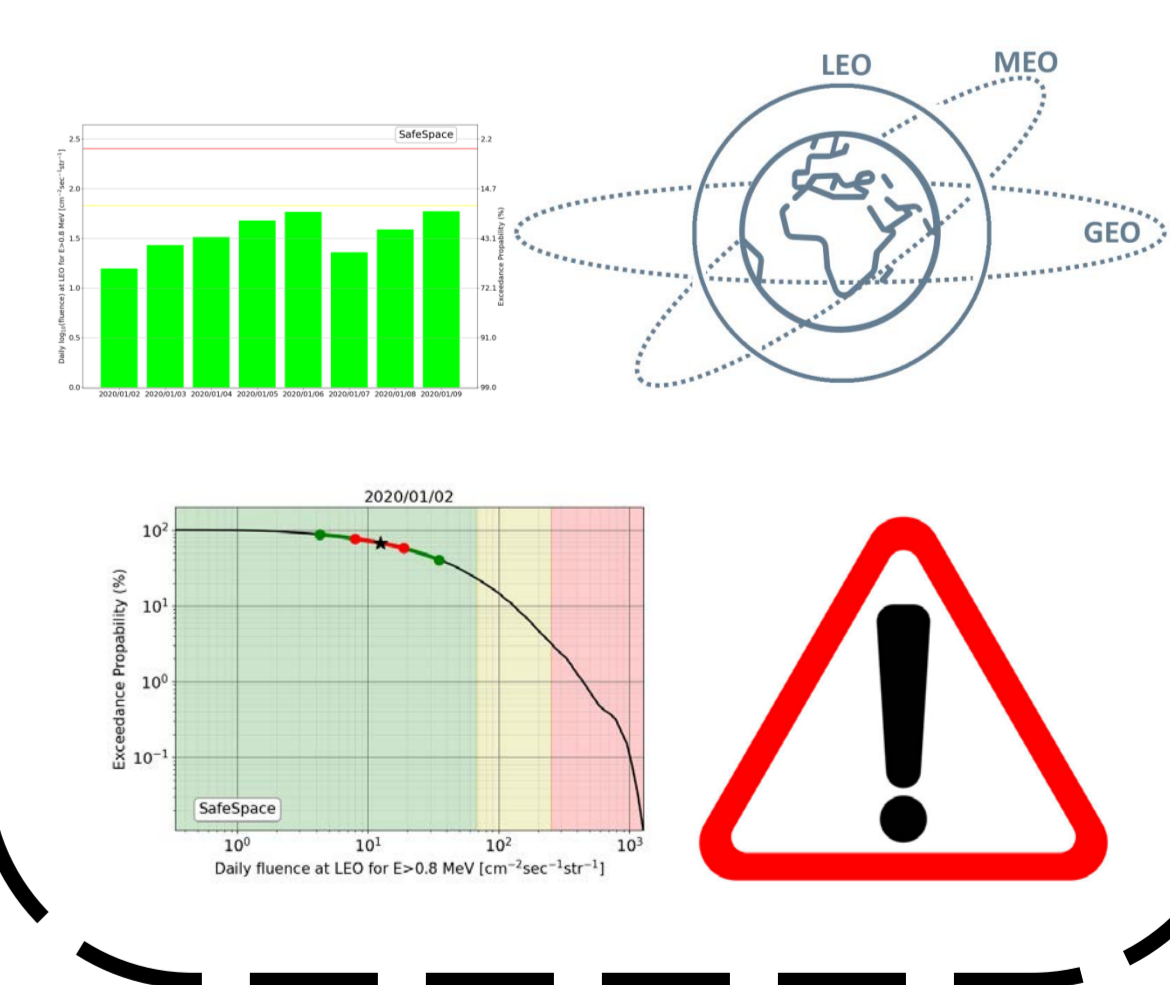


Solar wind parameters and geomagnetic activity



Forecast with a target lead time of 2 to 4 days

Early warning system for detrimental space weather events



Samara et al. "Implementing the MULTI-VP coronal model in EUFORIA: test case results and comparisons with the WSA coronal model." *Astronomy & Astrophysics* (2021)

Pierrard et al. "Improving predictions of the 3D dynamic model of the plasmasphere." *Frontiers in Astronomy and Space Sciences* (2021)

Dahmen et al. "Efficient computation of wave-particle interactions for a dynamic description of the electron radiation belt diffusion " (2022) Under review