**Radiative Transfer accurate tool for Ocean Colour**

Didier Ramon1, F. Steinmetz2, D. Jolivet3, M. Compiègne4, R. Frouin5

Monte Carlo (MC) Radiative Transfer Codes (RTC) have been considered for long to be slow. The emergence of easily programmable Graphical Processing Unit (GPU) has enabled to massively parallelize, and thus dramatically speed up MC RTC, using only a desktop PC equipped with an additional standard graphics card. We present here the code SMART-G (Speed-up Monte-carlo Advanced Radiative Transfer code using GPU), that calculates spectral polarized radiances in the coupled ocean-atmosphere system. We give some examples where the performance and capabilities of MC RTC codes rank first when looking for a simulation and/or inversion tool: spherical geometry, PAR estimation, horizontal inhomogeneities of surface albedo (adjacency effects), and potentially Line by Line in narrow bands

1. dr@hygeos.com

2. fs@hygeos.com

3. [dj@hygeos.com](mailto:dj@hygeos.com)

4. mc[@hygeos.com](mailto:dj@hygeos.com)

5. rfrouin@ucsd.edu

Hygeos, 165 av. de Bretagne, 59000 Lille, France