

P02

**Post-GPM rain retrieval and 3-D wind retrieval: the DYCECT mission**

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GPM-core (Global Precipitation Mission) was launched in the spring 2014 and the post-GPM era is already in the decision/design phase. This is why it is time to investigate future possible missions to be launched. We propose here to study the feasibility of a mission that would carry a scanning polarimetric Doppler radar: DYCECT. This mission would not only be able to measure rain but also to build instantaneous wind fields and statistics of dynamics in convection and to retrieve the microphysical properties of precipitating ice.

Indeed, the critical variables that have not been measured so far by satellite-borne instruments are the three components of the wind field in the convection. Scanning radars with Doppler capability could allow us to retrieve dynamic information along with the rain estimates. This dynamic information would not only be a breakthrough in terms of our knowledge of convective properties (specifically over deep ocean) but also, dynamics can be a help to improve retrieval of rain because of the strong connection between the latter and microphysics.

In 2018, the EarthCare ESA-JAXA mission will see the first Doppler cloud radar (nadir pointing). In parallel ESA's ADM-AEOLUS with a Doppler lidar will provide some hints about the global dynamics. DYCECT will come to complement these missions, benefiting of these first results and going one step further.