

Final report: Cooperation agreement BL/35/IN03:

Summary Report

The BeMind cooperation agreement was agreed on by the Royal Belgian Institute for Space Aeronomy (BE) and the Indian Space Research Organisation Satellite Center (Bangalore, India).

Within these Institutes, the collaboration has essentially been carried on between the Planetary Aeronomy Division (PAD), led by Dr. Ir. A.C. Vandaele and by the Space Astronomy Group (SAG), led by Dr. S. Narendranath. The two groups were brought together thanks to their respective expertise in AOTF, a key element in space instrumentation, and their interest in planetary atmospheres. Both groups are involved in planetary missions and are willing to benefit from each other's experiences.

Taking advantage of the momentum created by the networking agreement, CoopInde (BI/35/fwi02) and thanks to the BeMind funding, the collaboration grew into a common project around the calibration of space instruments, namely SOIR, PRISM and NOMAD.

Two workshops were organized in Bangalore, India, one in May 2013 and one in June 2014. The main focus of these meetings was "planetary atmospheres" and "Venus" respectively and gathered a broad audience of scientists and engineers involved in planetary research. During each of these workshops, two days were devoted to Hands-on sessions related to the use of SOIR data and the ASIMUT radiative transfer code developed at BIRA-IASB.

A 4-days stay of Dr. S. Narendranath in April 2015 in Belgium and a 12-days stay of Dr. A. Mahieux in February 2016 in Bangalore, India were organized as well. During these stays the SOIR calibration was discussed. A plan of action items was established and should be carried out by August 2016. This study led already to one poster at the National Space Science Symposium) and will lead to at least one peer-reviewed publication in a near-future.

The budget of 22300 euros was not fully used. In fact, only half of the allocated budget was spent. This is explained by two facts: 1. The expenses on 2013 were paid by the CoopInde agreement (BI/35/fwi02), as the two agreements overlapped ; 2. It appeared very complicated to host Indian researchers in Belgium.

The two partners have exchanged knowledge and paved a new road into this bilateral collaboration. The networking efforts may be demanding but the results start to pay off with common publications in preparation and ongoing discussion about new missions to Mars (2020) and Venus (2023). The difficulties encountered to host Indian researchers indicate that without a formal agreement and the best will of our partner Dr. S. Narendranath, the continuity of the collaboration may be jeopardized, which is not our wish.