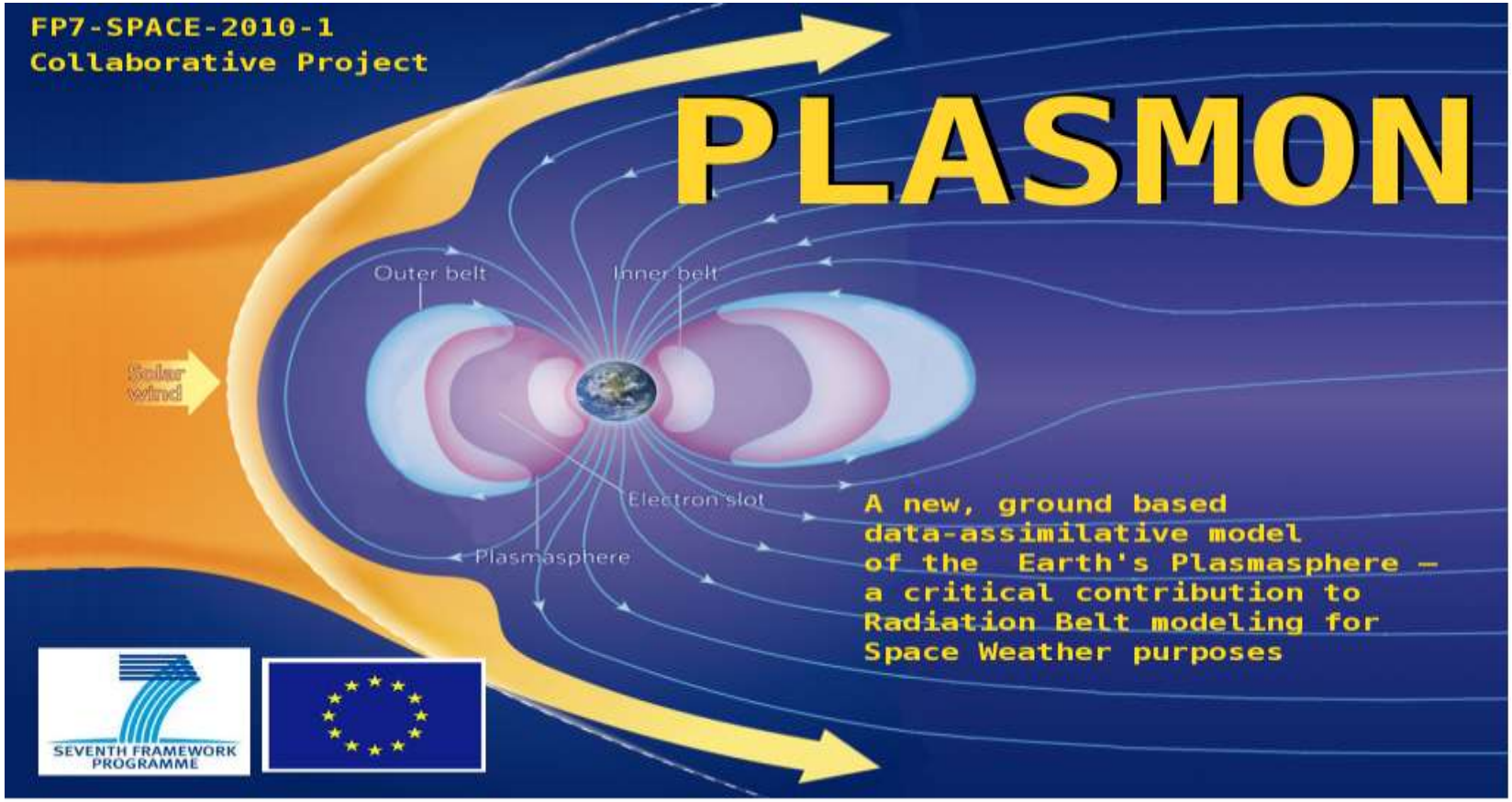


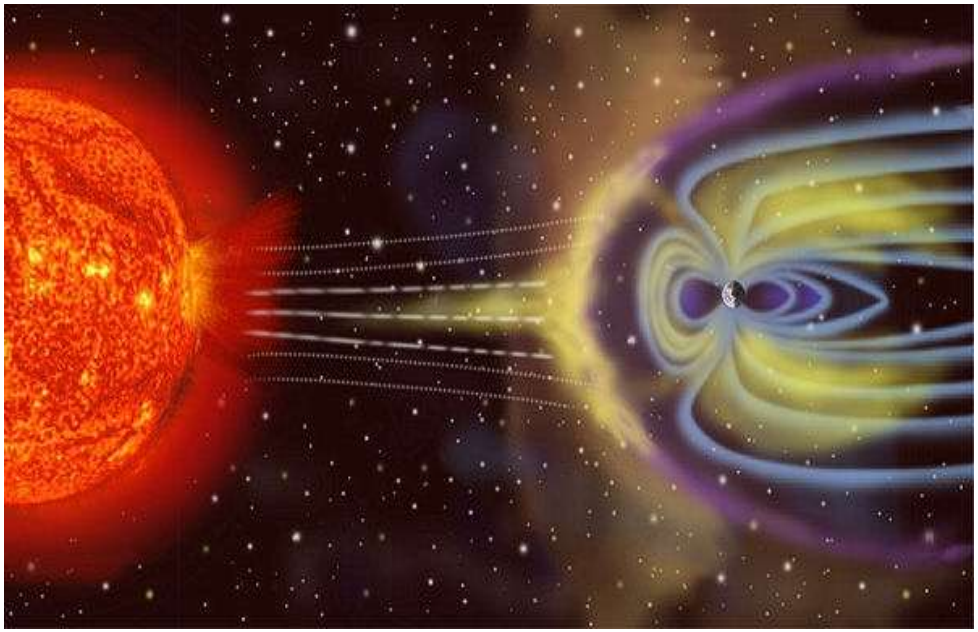
South African PI: Andrew Collier ***Presented by: Lee-Anne McKinnell***

SANSA Space Science, Hermanus, South Africa.

http://plasmon.elte.hu

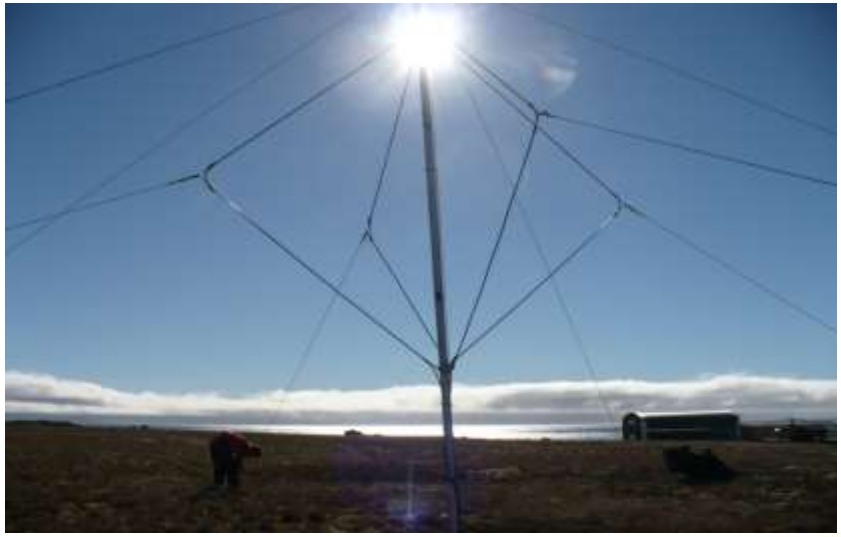
Objectives

- **Perform regular measurements of plasmaspheric electron and mass densities.**
- **Develop a data assimilative model of the plasmasphere.**
- **Monitor the occurrence of Relativistic Electron Precipitation (REP), and link their occurrence to changes in plasmaspheric densities.**



Motivation

- **Knowledge of the plasmasphere is essential (for eg – protection of space assets from space weather events).**
- **Observations by satellites can provide a piece of the picture, but they have their limitations.**
- **Ground based observations can make continuous observations in many locations, and the instruments are relatively inexpensive.**



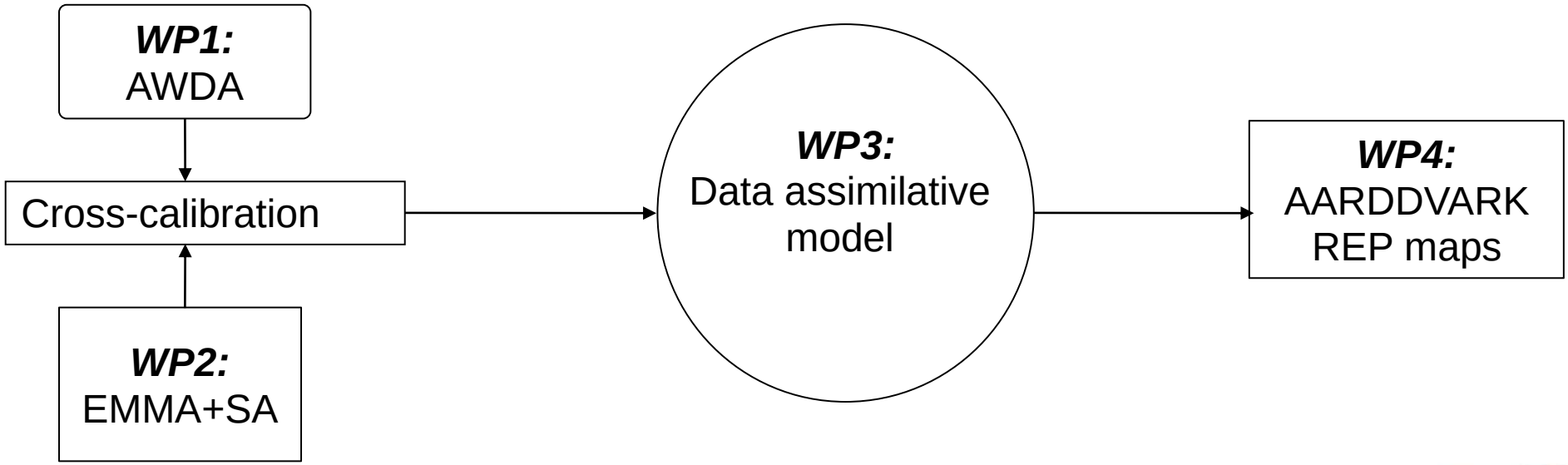
Workpackages and methology

***WP1*: Electron Density Profiles (AWDA).**

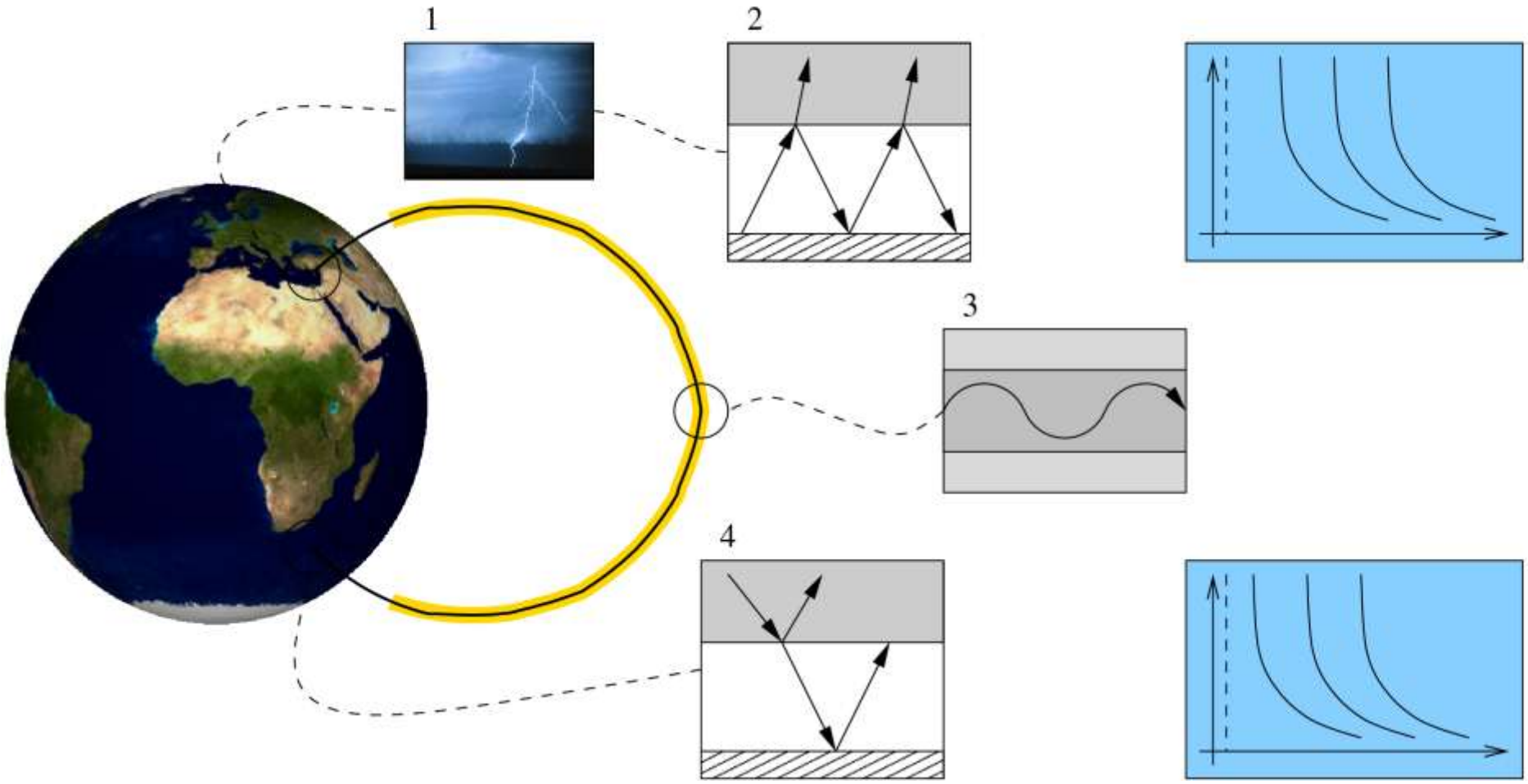
***WP2*: Retrieval of plasma mass densities (EMMA) and cross-calibration with whistlers (also SA stations).**

***WP3*: Assimilative modeling of the Earth's plasmasphere.**

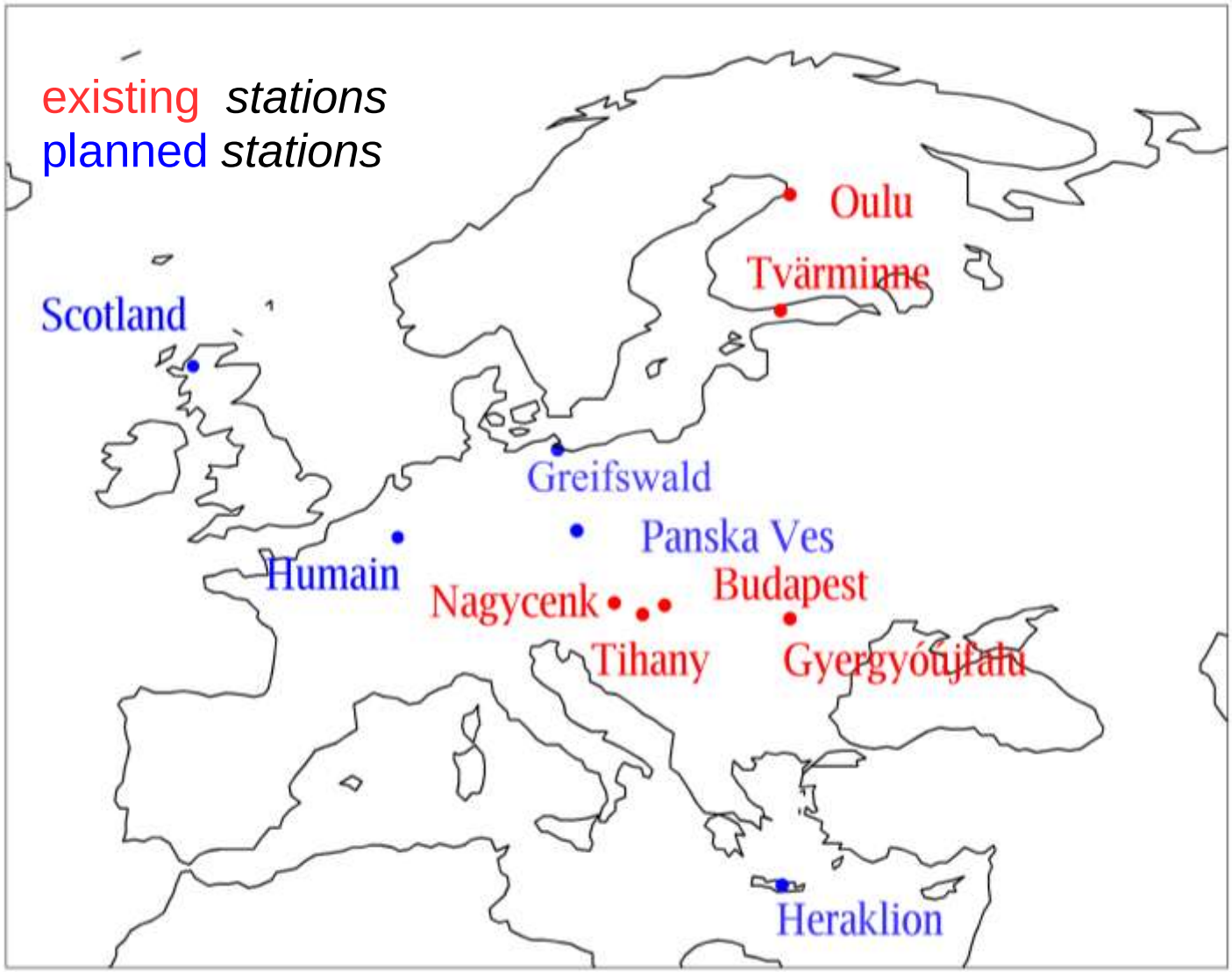
***WP4*: REP losses (AARDDVARK).**



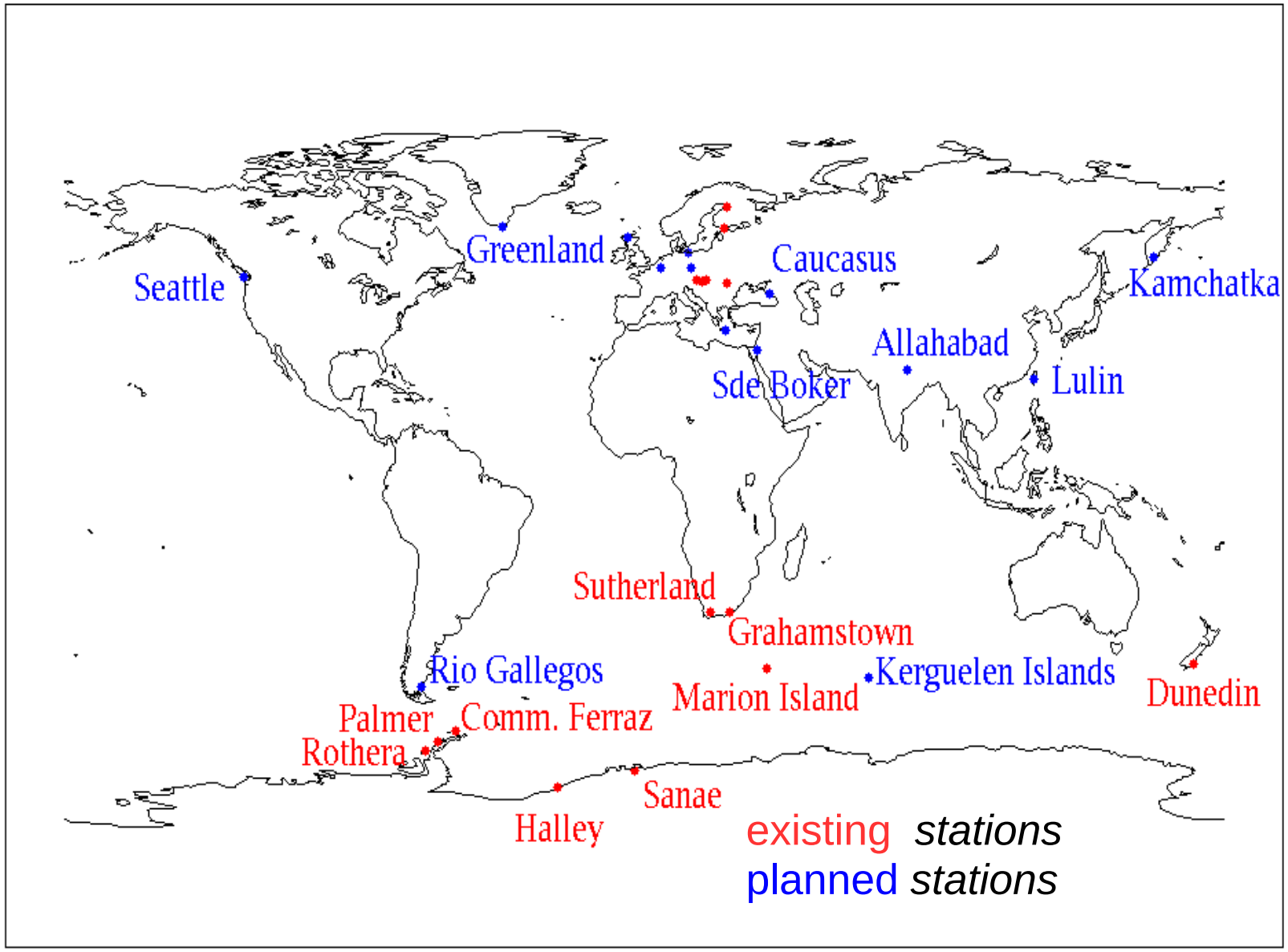
Method



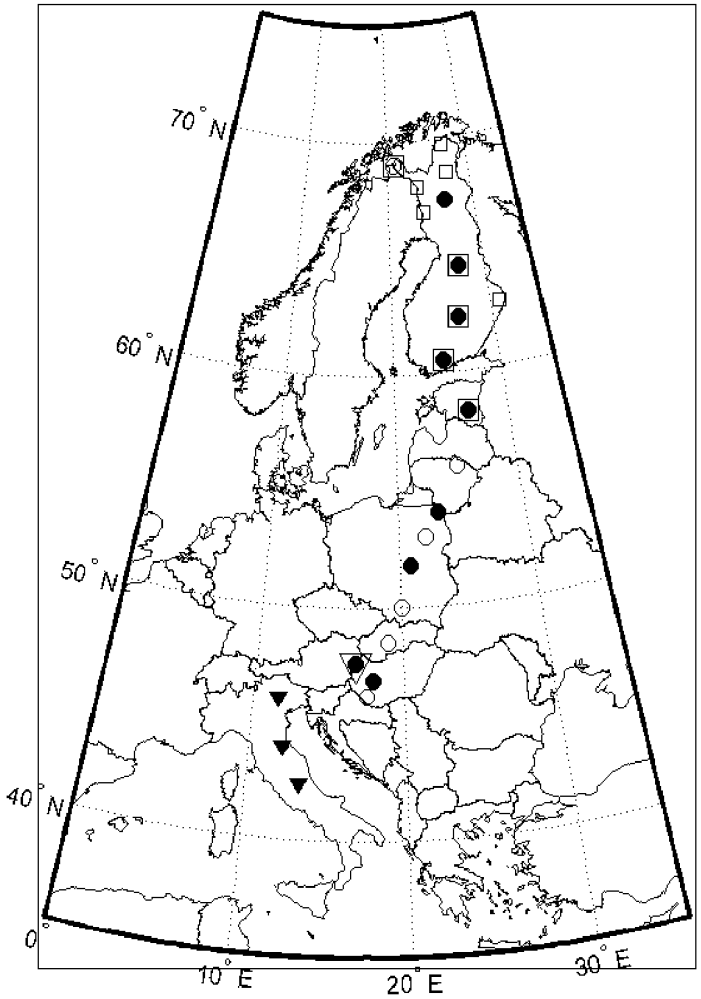
AWDANet - Europe

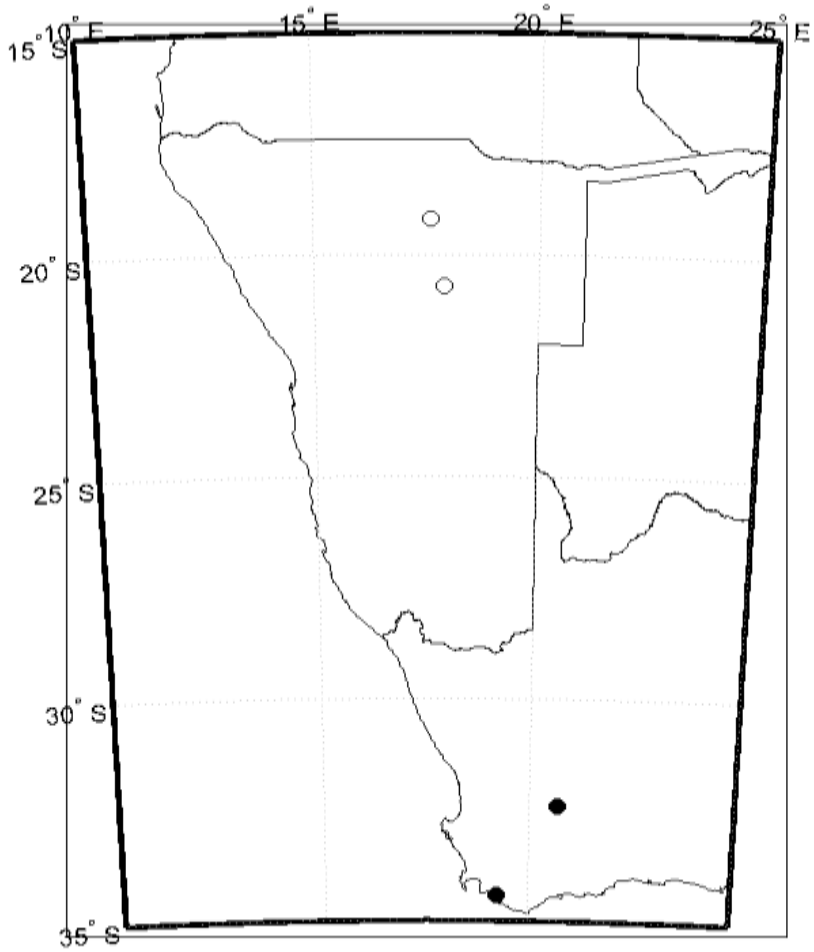


AWDANet - World



EMMA + South African network

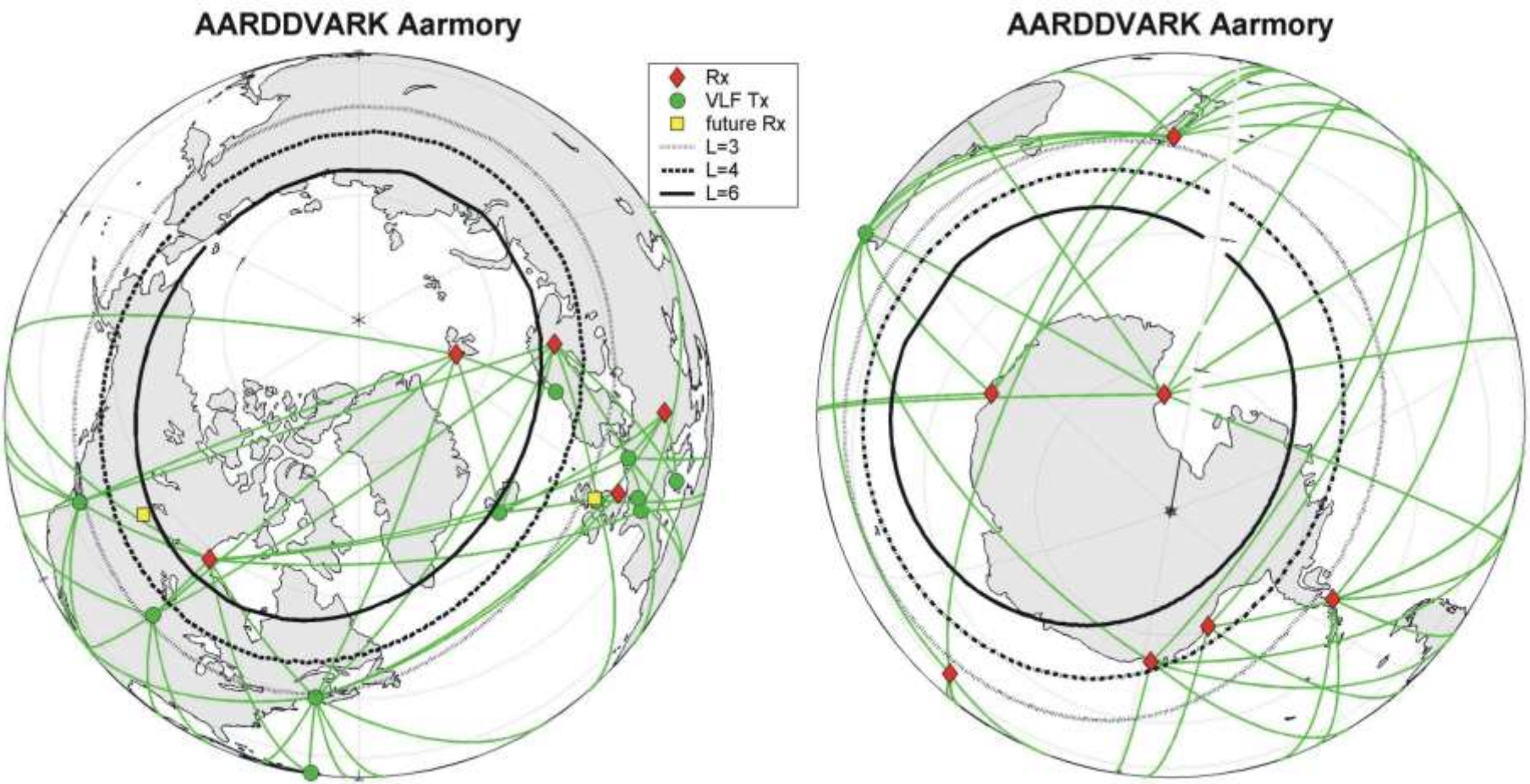




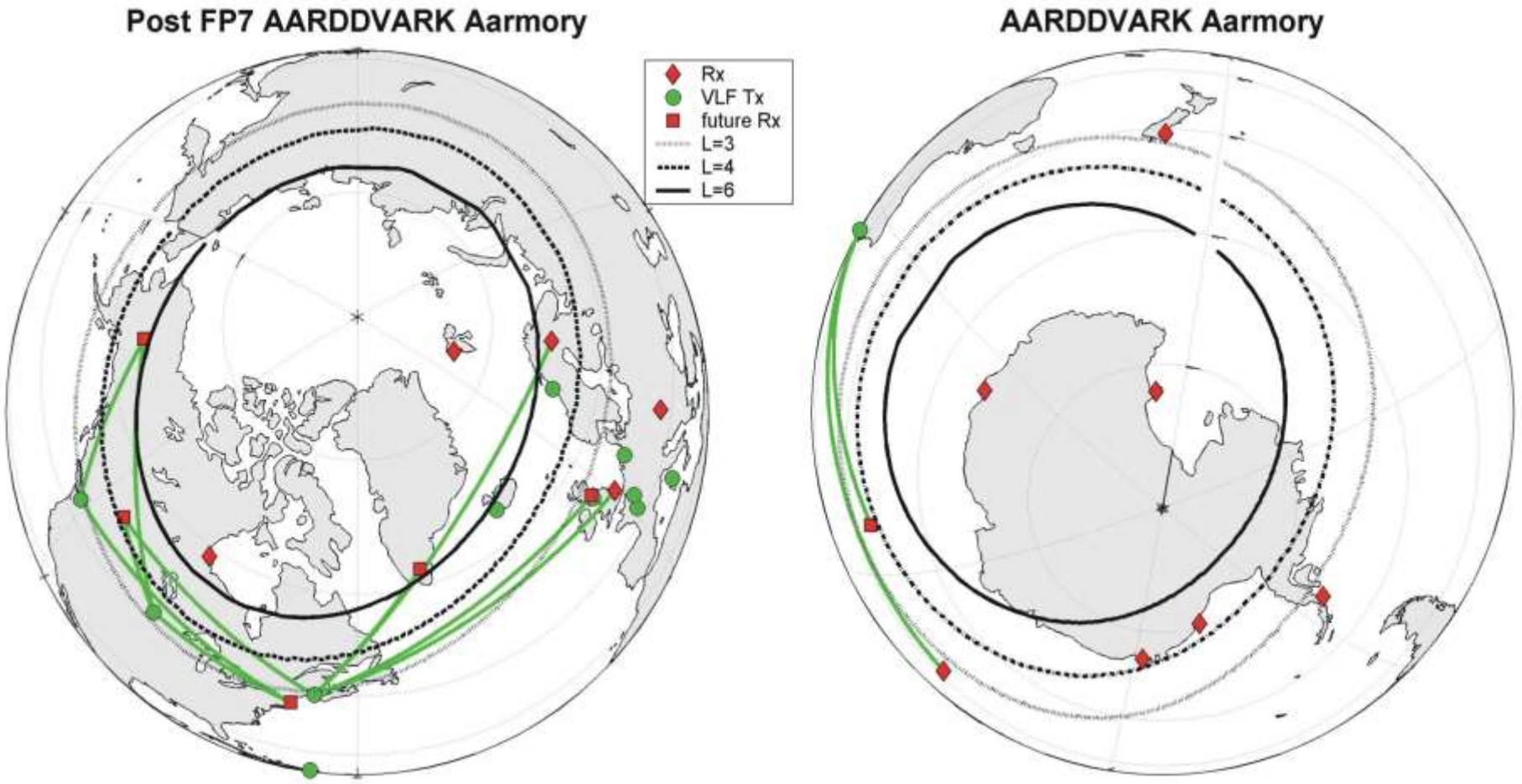
○ ▽ existing *stations*

● ■ planned *stations*

ARDDVARK - existing network



AARDDVARK – extended network



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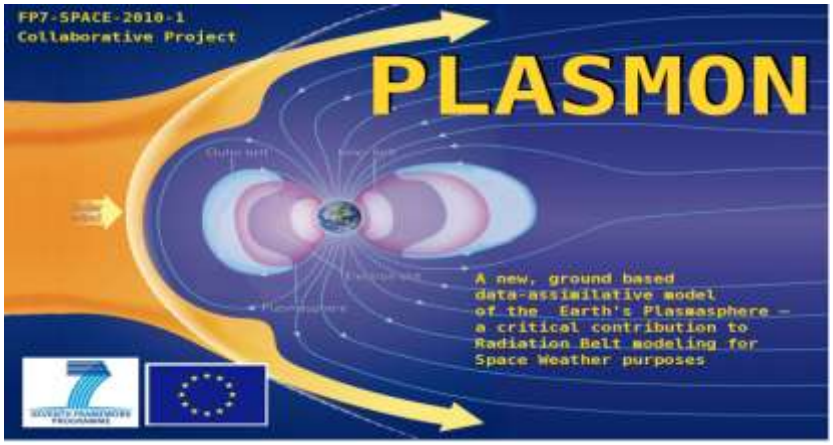
New Mexico Institute of Mining and Technology	Anders Jorgensen	USA
Institute of Geophysics, Polish Academy of Sciences	Jan Reda	Poland
University of Washington	Robert Holzworth	USA



A new, ground based data-assimilative model of the Earth's plasma-sphere – a critical contribution to Radiation Belt modeling for Space Weather purposes

The research leading to these results has received funding from the European Union Seventh Framework Programme [FP7/2007-2013] under grant agreement n°263218