

# PMC Science Management - PSM

David Brown and the PLATO Consortium

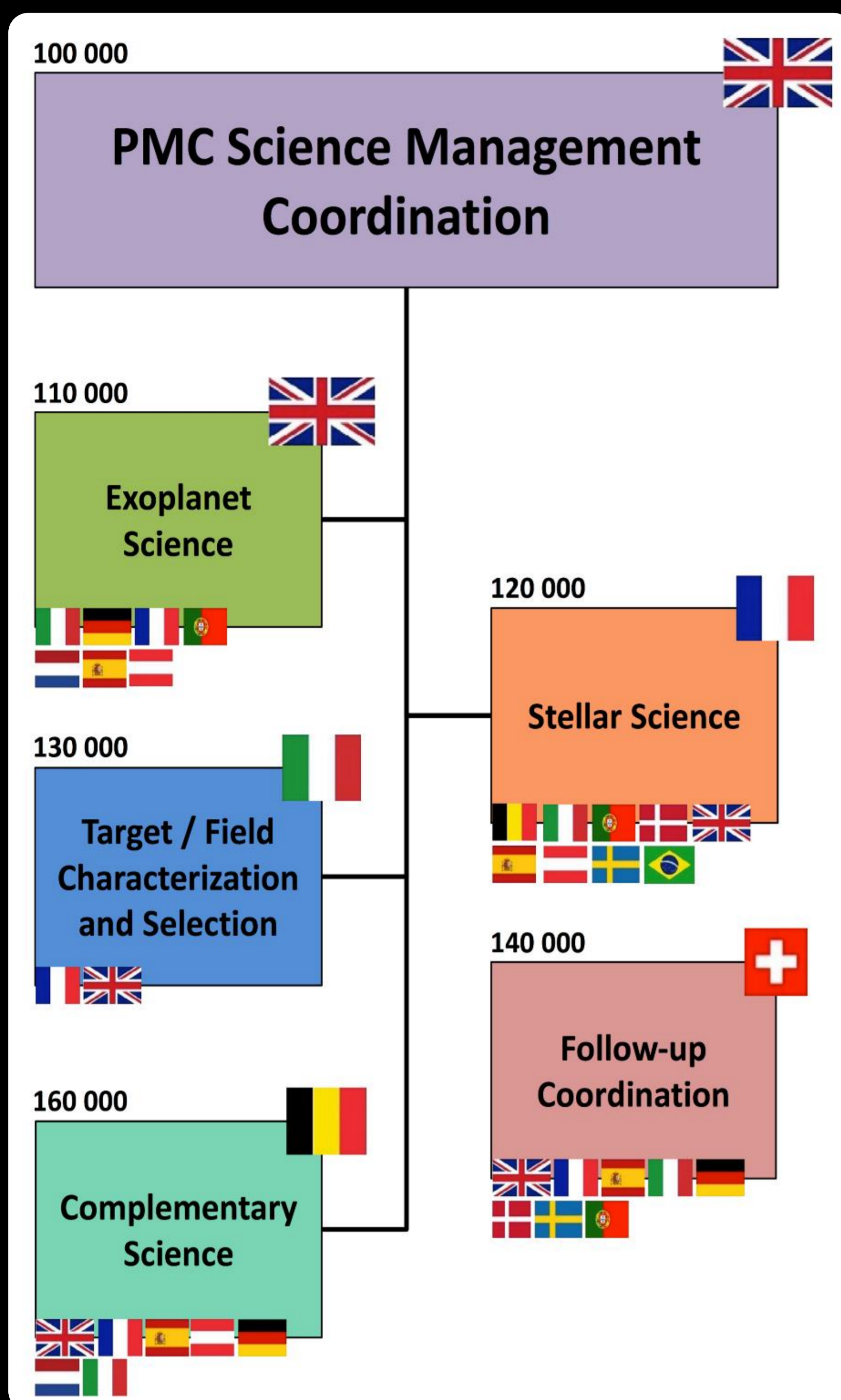


## Introduction

PMC Science Management (PSM) includes more than 500 researchers from more than 20 countries.

The PSM's main responsibilities are:

- Defining algorithms, methods, and inputs needed to exploit PLATO data for both exoplanet and stellar science. These are passed to the PDC for implementation.
- Defining the data, metadata, and sources that will be used to prepare the PLATO Input Catalogue (PIC).
- Identifying the optimal fields for PLATO to observe.
- Coordinating the ground- and space-based follow-up observations needed to confirm PLATO discoveries.
- Coordinating science exploitation outside the core science program of the mission, involving the wider scientific community.
- Scientifically reviewing and validating the performance of the data processing pipelines, and defining updates where needed.
- Scientifically validating PLATO's data products.



## Core Science

### Exoplanet Science

Leader: Don Pollacco (University of Warwick, UK)

Research activities include:

- Development of methods and algorithms for transit detection (as well as other planet detection methods).
- Determination of planets' bulk parameters.
- Lightcurve filtering by the characterisation of intrinsic noise.
- Identification, and elimination, of false positive signals such as eclipsing binaries, background blends, etc.

### Stellar Science

Leader: Marie-Jo Goupil (LESIA, Paris Observatory, France)

Research activities include:

- Oscillation mode inversion techniques.
- Production of state-of-the-art grids of stellar evolution models that include new physical ingredients (such as rotation, internal waves, magnetic fields, etc.).
- Asteroseismology.
- Study, and modelling, of stellar atmospheres.

### Field / Target Characterisation & Selection

Leader: Giampaolo Piotto (University of Padova, Italy)

Research activities include:

- Identification of optimal fields for PLATO to observe.
- Assessment of primary, secondary, and tertiary stellar samples.
- Interfaces with large spectroscopic, photometric, and astrometric catalogues, including those from Kepler, TESS, and Gaia.
- Assessment of field and source contaminants for PLATO targets.

## Other Activities

### Follow-up

Leader: Stephane Udry (Geneva Observatory, Switzerland)

Research activities include:

- Follow-up studies, including:
- Identification of follow-up facilities, both in existence and currently being planned.
- Development of an international follow-up procedure, including organisation and coordination of follow-up observations.
- Assessment of the efficiency of the follow-up process

### Complementary Science

Leader: Conny Aerts (University of Leuven, Belgium)

Research activities cover science outside the core mission goals, and include:

- Binary and multiple stars, pulsating stars, and stars with extreme mass loss.
- Young stellar objects and debris disks.
- Transient phenomena and accretion physics.
- Galactic structure and extragalactic science.

