



Stellar analysis system

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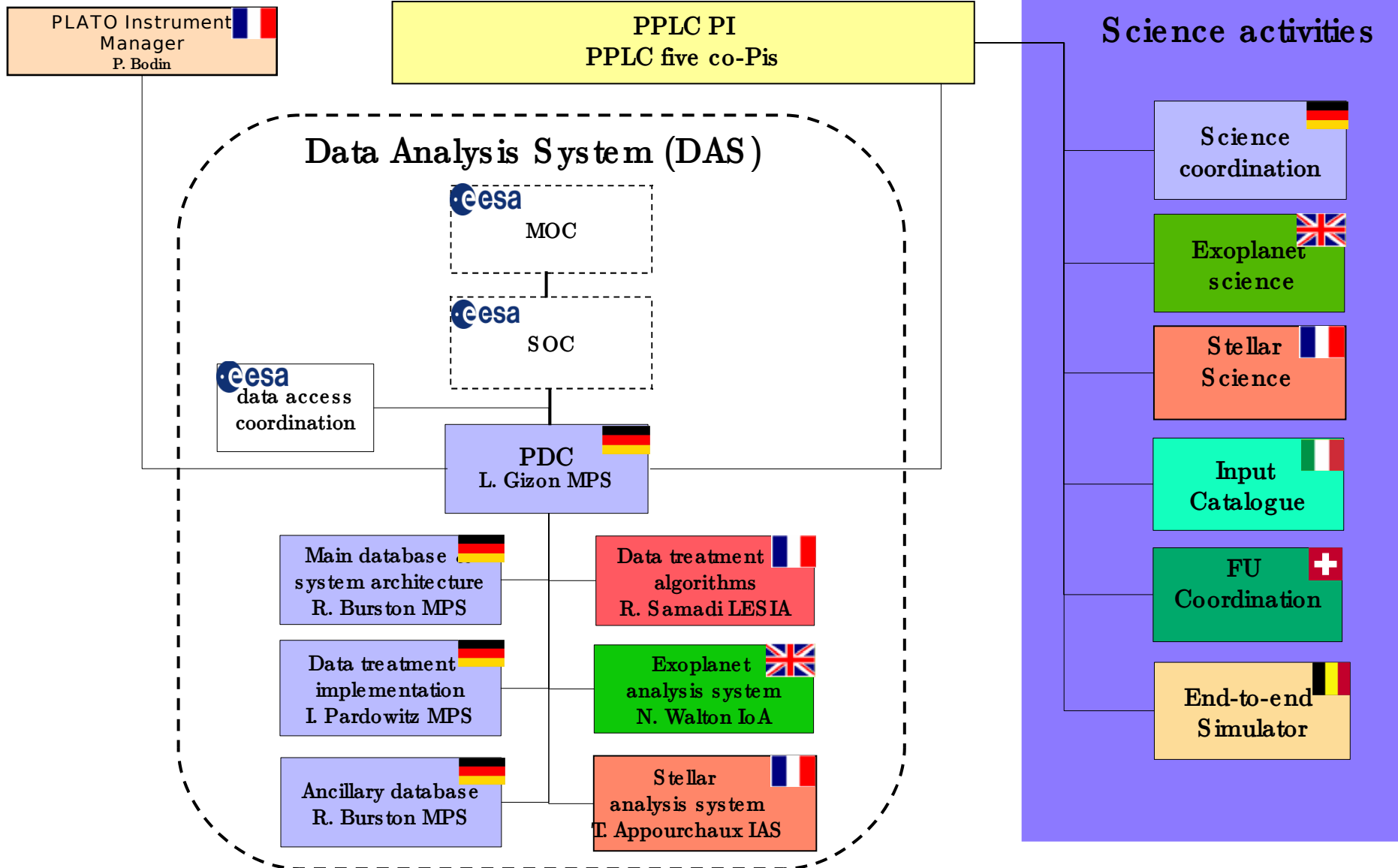
Plan



- DAS structure
- Work packages and levels
- Data products
- Goal of the splinter
- Stellar products
- Discussion



PLATO: Science activities and DAS





Data Products and levels

- Ref is ES A/SRE(2009)4
- Level 0:
 - Data Product 0 (DP0) under ES A
- Level 1:
 - DP1 under LESIA
- Level 2:
 - DP2/6 under Cambridge
 - DP3/4/5 under IAS
 - DP3/4/5 named *Stellar Products*



Goals of the splinter



- List Data Products (DP) under resp. of IAS
- Predefine how the DPs are implemented in IAS
- List the potential contributors for each DP



Stellar Products (DP3)



- Solar-like pulsators: freq., ampl., life times, degree, splitting, inclination angle, large freq separation, small freq separation,...(+errors)
- Red giants: same as above + a bit of below
- Classical pulsators: freq., ampl., phases (+errors)
 - Cepheid, B stars,
- Solar twins
- Solar-like stars with planets (inclination,...)
- Open clusters: simultaneous fit (same age, same composition)
- Your contribution...



DP3 implementation



- Solar-like pulsators: Fourier, Classical MLE, Bayes if S/N low, how many fitters?
- Classical pulsators: Lomb-Scargle, Sine wave fitting
- Solar twins: same as solar-like
- Solar-like stars with planets (inclination,...): a drop of Bayes
- Open clusters: simultaneous MLE fit
- Product and quality assurance (different fitters or not?)
- To be discussed !



Stellar Products (DP4)



- Stellar rotation and activity:
 - rotation
 - spot modelling
 - inclination
- Stellar noise: granulation(s), Harvey-like model
- Your contribution...



DP4 implementation



- Stellar rotation and activity:
 - low frequency periodicity
 - follow-up required ? (Doppler imaging)
- Stellar noise: granulation(s), Harvey-like model
 - Related to DP3
- Product and quality assurance
- To be discussed!



Stellar physics (DP5)



- Stellar age, mass, radius
- Your contribution...



DP5 implementation



- Input required from Stellar Science (M.-J.Goupil)
- Grid of models
- Criteria for agreement
- Surface effects (what do we do?)
- Different models...
- Different oscillation codes
- Product and quality assurance
- Your contribution...





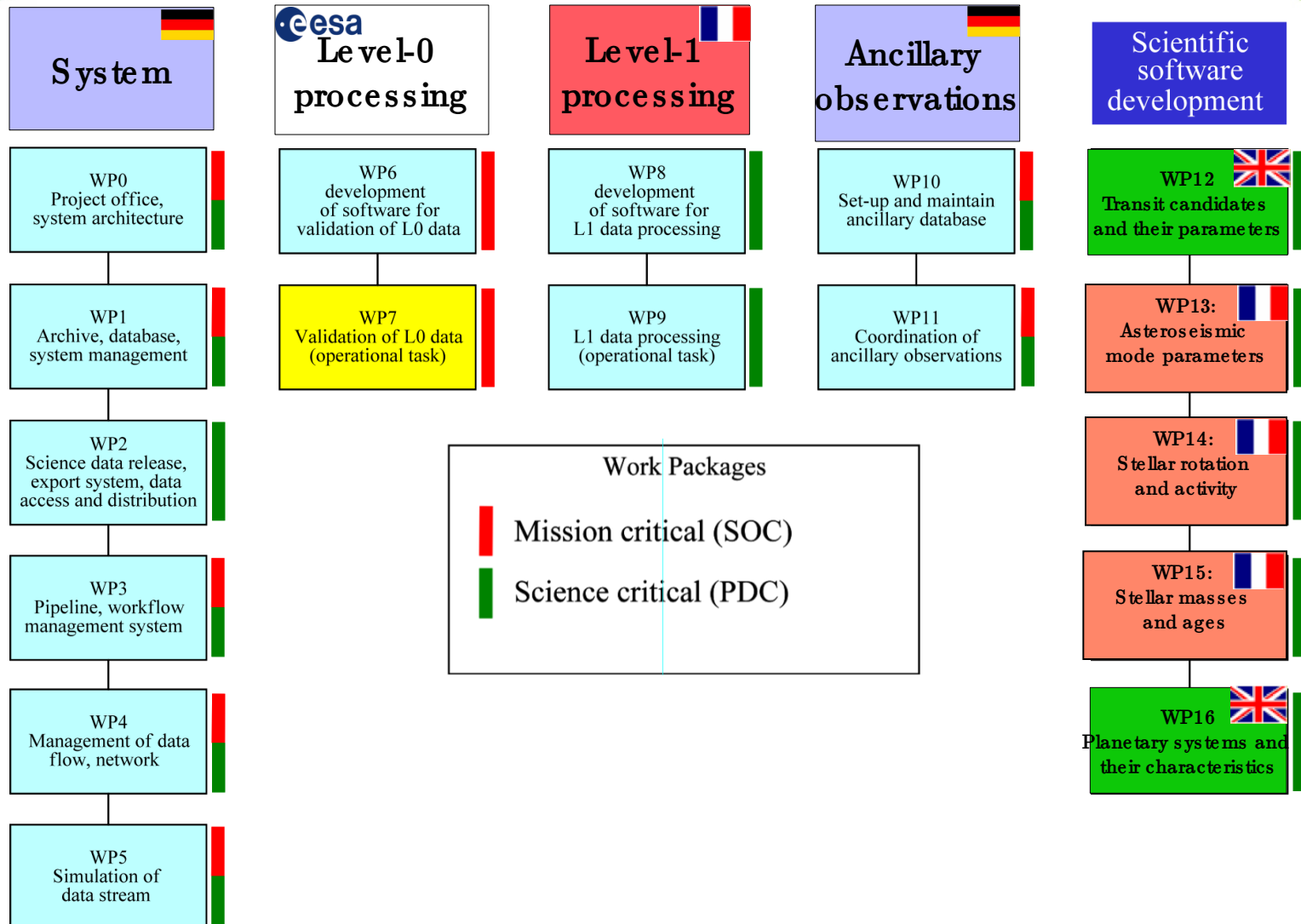
Level de finition



- Level 0:
 - Light curves, centroid curves, imagelets (NO instrumental correction)
- Level 1:
 - Light curves with instrumental corrections (temperature, CCD, jitter)
- Level 2:
 - Transit, stellar oscillation parameters, star and planet characteristics



Work Packages of PDAS





Data Products, levels and WP



- Ref is ESA/SRE(2009)4
- Level 0:
 - Data Product 0 (DP0) from WP6/7 under ESA
- Level 1:
 - DP1 made from WP8/9 under LESIA
- Level 2:
 - DP2/6 made from WP12/16 under Cambridge
 - DP3/4/5 made from WP13/14/15 under IAS

DP3/4/5 named *Stellar Products*