



# HELICATS: HELIOSPHERIC CATALOGUING, ANALYSIS AND TECHNIQUES SERVICE

## Work Package 2

Producing a definitive catalogue of CMEs  
imaged by STEREO/HI

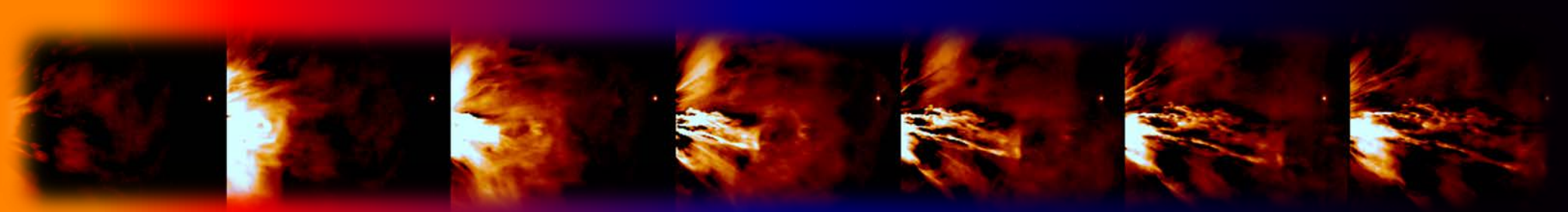


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The RAL Space logo, featuring the text 'RAL Space' in white, followed by a stylized graphic of a satellite or spacecraft orbiting a central point.



**WP2:** This WP involves the production of a catalogue of CMEs in the heliosphere. The catalogue will be produced from manual inspection of STEREO/HI data but use of automated techniques will be investigated. Comparisons with coronal CME catalogues will be made.





**WP2 Task 1: STFC**

Manual cataloguing of STEREO/HI CMEs

**WP2 Task 2: ROB**

Automatic cataloguing of STEREO/HI CMEs

**WP2 Task 3: UGOE, STFC, ROB**

Comparison of CME catalogues

**WP2 Task 4: STFC**

Scientific management



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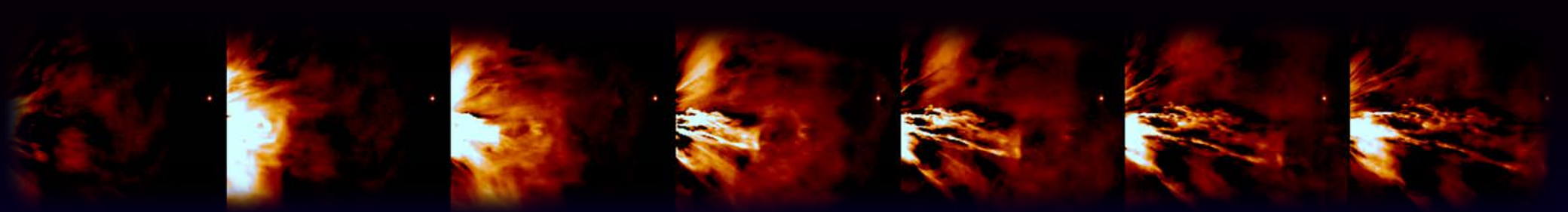
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### List of deliverables

Deliverable Number <sup>61</sup>	Deliverable Title	Lead beneficiary number	Estimated indicative person-months	Nature <sup>62</sup>	Dissemination level <sup>63</sup>	Delivery date <sup>64</sup>
D2.1	Catalogue of observational parameters of HI-1 manually-identified CMEs	1	13.50	Other	PU	36
D2.2	Report on the feasibility of automatic identification of CMEs in HI-1 data	5	14.00	Report	PP	12
D2.3	Report on the inter-comparison of the manual and automated CME catalogues	1	12.00	Report	PP	18
D2.4	Report in which the manual and automated HI CME catalogues are compared to pre-existing coronagraph CME catalogues	1	8.00	Report	PP	24
D2.5	Scientific management of HELCATS	1	4.00	Other	PP	36
<b>Total</b>			<b>51.50</b>			

Description of deliverables





## Task 2.1: Manual cataloguing of STEREO/HI CMEs

Each STEREO/HI instrument has detected many hundreds of CMEs in the heliosphere since the start of the science phase of the mission in April 2007 (e.g. Harrison et al. 2009; 2012). In Task 2.1, we will, via visual inspection of the HI-1 images from the two spacecraft independently, catalogue these CMEs in terms of their basic observational parameters: observing spacecraft; entry time into the HI-1 field of view; position angle corresponding to the central axis of propagation; position angle span. We will also indicate potential halo CMEs - where the CME is directed towards the observing spacecraft. In these situations, a CME's central position angle and span cannot be unambiguously determined; such CMEs are of particular interest in terms of comparison with in-situ measurements. This process will be continued throughout as new observations are made.

# WP2.1: Manual cataloguing of STEREO/HI CMEs

For each CME identified via visual inspection for each STEREO spacecraft independently\*, we include in the catalogue:

- CME unique identifier;
- Entry time of CME into HI-1 field of view;
- Spacecraft (A or B);
- Northernmost position angle (PA) extent;
- Southernmost position angle (PA) extent;
- Possibility of CME being a halo;
- CME clarity (0, 1 or 2).

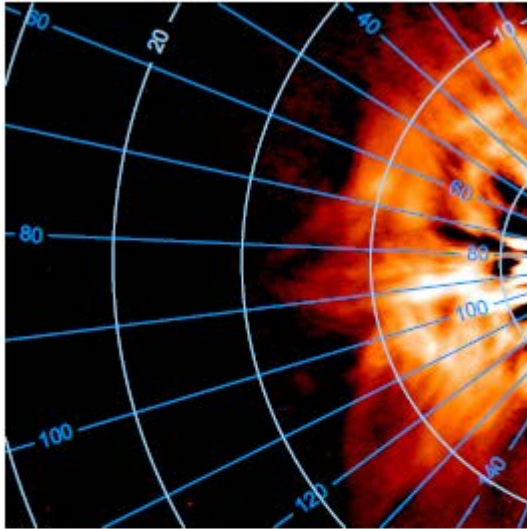
\* Identified according to threshold criteria in terms of PA and elongation



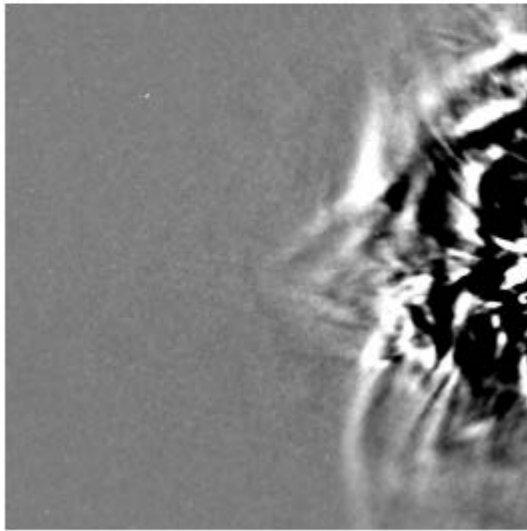
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STEREO/HI-1A  
2011-09-24 20:49UT



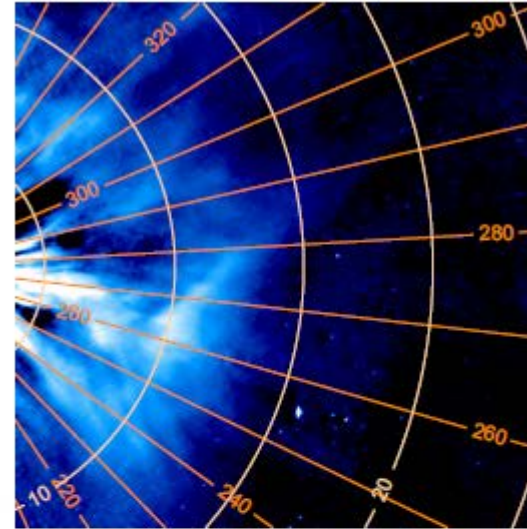
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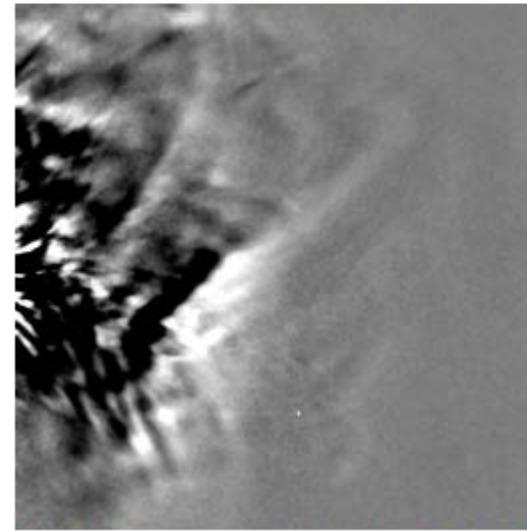
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STEREO/HI-1B  
2011-09-24 20:49UT



Background subtracted (1-day background)



Running difference (subtracted image: 2011-09-24 20:09UT)



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