# belspo





### LYRA status update

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SWT, Brussels, 27/06/2016

#### Instrument status



#### Degradation

#### R Status on February 15, 2016

Channel	Remaining signal	Channel	Remaining signal	Channel	Remaining signal
Unit 1		Unit 2		Unit 3	
Channel 1-1	62%	Channel 2-1	0.6%	Channel 3-1	61%
Channel 1-2	75%	Channel 2-2	0.03%	Channel 3-2	9%
Channel 1-3	100%	Channel 2-3	3%	Channel 3-3	19%
Channel 1-4	100%	Channel 2-4	30%	Channel 3-4	71%

### Degradation Unit 2







#### Latest results



Eclipse: 2016/03/09







Eclipse: 2016/03/09







R Flare C1.3

### Eclipse of 2015/03/20

Paper submitted to Space Science Reviews
Multi-instrument observations of the solar
eclipse on 20 March 2015 and its effects on
the plasmasphere and ionosphere over
Belgium and Europe

S. M. Stankov <sup>(1,4)</sup>, N. Bergeot <sup>(1,2)</sup>, D. Berghmans <sup>(1,2)</sup>, D. Bolsée <sup>(1,3)</sup>, C. Bruyninx <sup>(1,2)</sup>, J.-M. Chevalier <sup>(1,2)</sup>, F. Clette <sup>(1,2)</sup>, H. De Backer <sup>(1,4)</sup>, J. De Keyser <sup>(1,3)</sup>, E. D'Huys <sup>(1,2)</sup>, M. Dominique <sup>(1,2)</sup>, J. Lemaire <sup>(1,3)</sup>, J. Magdalenić <sup>(1,2)</sup>, C. Marqué <sup>(1,2)</sup>, N. Pereira <sup>(1,3)</sup>, V. Pierrard <sup>(1,3)</sup>, D. Sapundjiev <sup>(1,4)</sup>, D. B. Seaton <sup>(1,2)</sup>, K. Stegen <sup>(1,2)</sup>, R. Van der Linden <sup>(1,2)</sup>, T. G. W. Verhulst <sup>(1,4)</sup>, M. J. West <sup>(1,2)</sup>

### Flare detection and analysis

- Development of an enhanced algorithm to detect flares in solar timeseries
- Creation of a LYRA flare list
- Analysis of the impact of the detection criteria on the detected flare population



## Flares detection and analysis

R Paper accepted in A&A

#### The Effects of Flare Definitions on the Statistics of Derived Flare Distributions

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- <sup>3</sup> Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado, USA
- <sup>4</sup> NOAA National Centers for Environmental Information, Boulder, Colorado, USA
- <sup>5</sup> School of Computer Science and Statistics, Trinity College Dublin, O'Reilly Institute, Dublin 2, Ireland

#### LYRA mid-term periodicities



#### R Paper accepted in Solar Physics



#### Two joint flare campaigns with IRIS: A few C flares detected



#### ∞ 2015/10/14 04:00 till 2015/10/20 04:00

∞ 2016/03/15 00:00 till 2016/03/21 00:00







#### In brief ...



- Mission currently founded till end 2016, extension confirmed till 2018, request for two more years ongoing
- Currently running our seventh Guest Investigator Programme
- New dark current correction: the reprocessed data are now on-line !!!

#### New data products

CR Lyra Rescaled : one-minute Lyra timeseries rescaled to match GOES scale

CR Lyra Background : daily EUV background extracted from LYRA data

R Lyra-based flare list

All can be obtained on http://proba2.oma.be



ROB/SIDC, Brussels, Belgium





#### LYRA highlights

- 3 instrument units (redundancy)
- $\propto$  3 types of detectors,
  - Silicon + 2 types of
  - diamond detectors (MSM, PIN):
  - radiation resistant
  - insensitive to visible light
    - compared to Si detectors
- R High acquisition cadence up to 100 Hz (nominal 20Hz)





#### The LYRA channels



### Degradation Unit 1



### Degradation Unit 3

