

Run à la demande et mise à disposition des données de simulation par le SNO STORMS

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<http://storms-service.irap.omp.eu/>

STORMS

Solar Terrestrial Observations and Modeling Service

Providing novel models and tools to the
heliophysics community



ABOUT



CATALOGUES



SCIENCE
TOOLS



FORECASTING
TOOLS



OPERATIONS



PROJECTS



PUBLICATIONS
& NEWS

STORMS team:

Permanent scientists:

Alexis Rouillard (CNRS)

Illya Plotnikov (CNAP, 0.16FTE)

V. Réville (Now Permanent Staff)

Collaborators:

Vincent Génot

Christian Jacquey

Myriam Bouchemit

Postdocs/PhDs

K. Dalmasse (Postdoc, Shocks energetic particles)

A. Kouloumvakos (-> JHAPL)

N. Poirier (PhD, coronal models -> Univ. of Oslo)

M. Lavarra (PhD, solar wind models->Agreg)

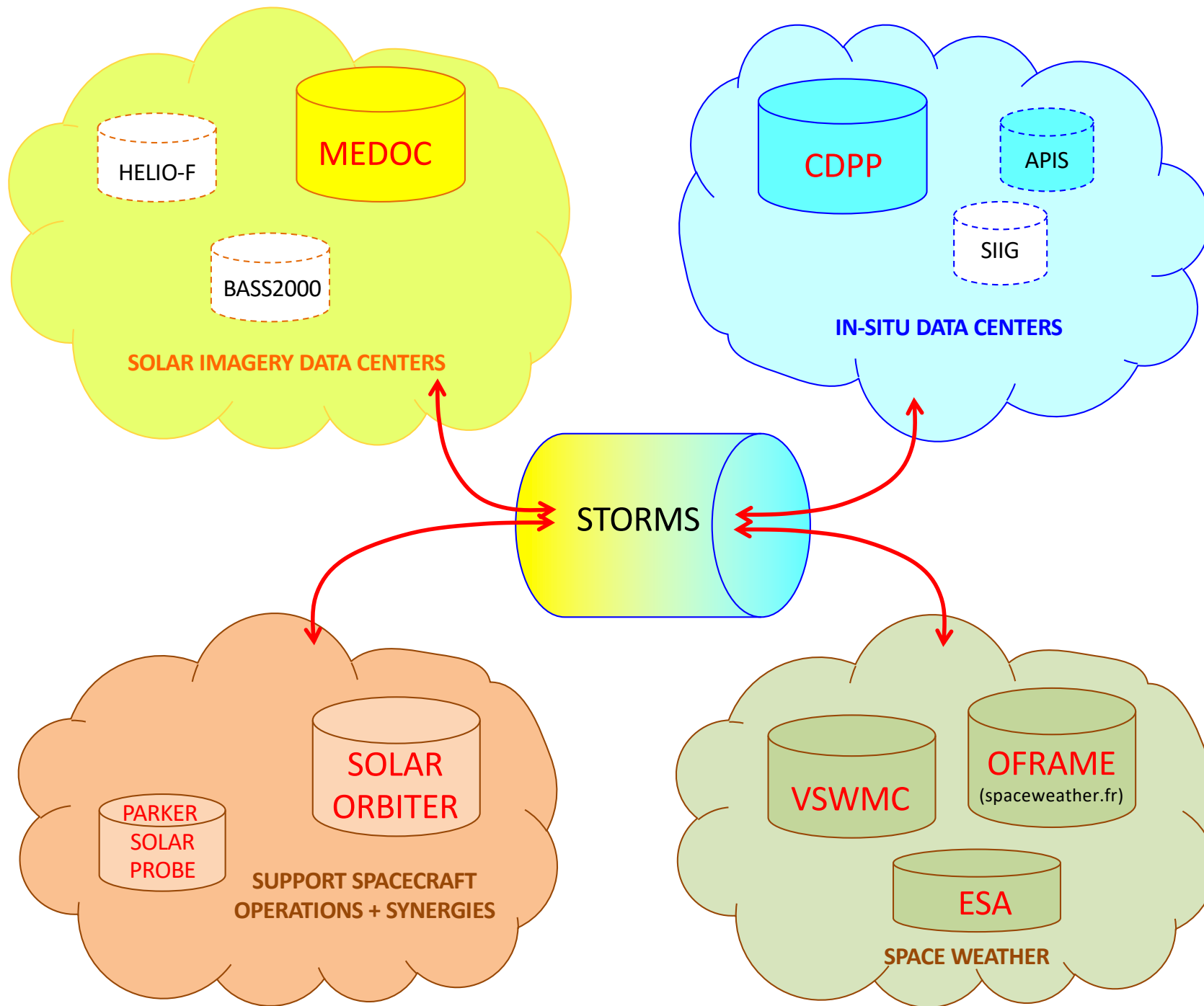
R. Pinto (-> CEA Postdoc, solar wind models)

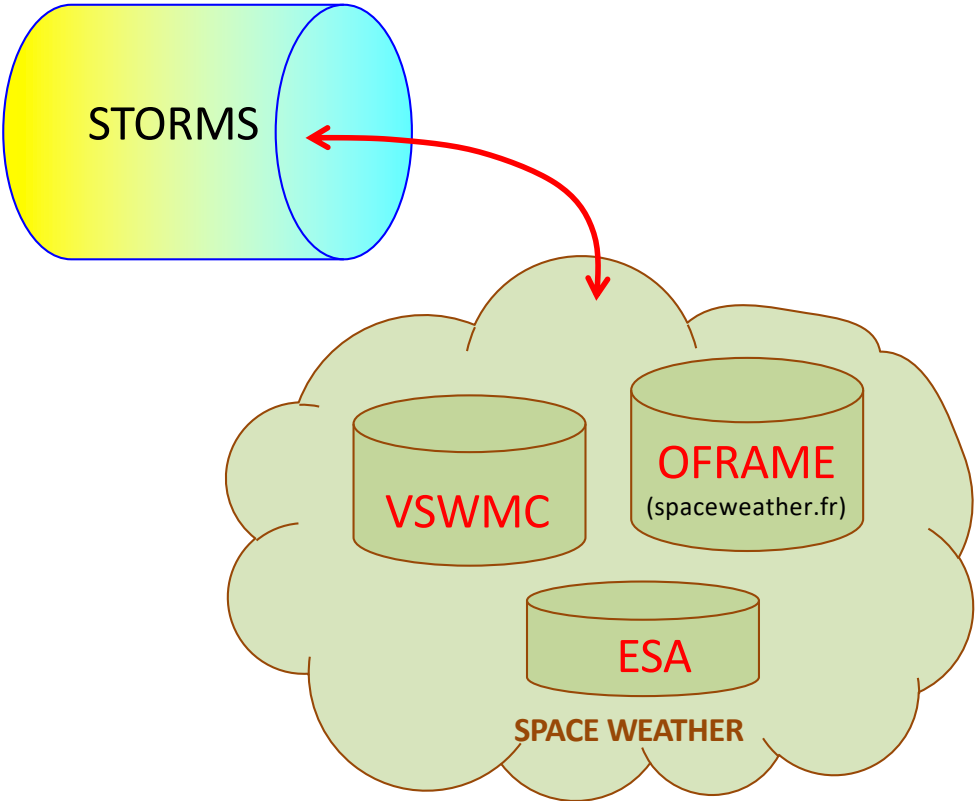
Project engineer:

Mikel Indurain (InforMarty)

Matthieu Alexandre (CDD, Web developer)

Computational/web infrastructure: Servers FORECAST 1/2/3/4: 680 threads (SLURM), 2 webservers, storage racks (METEO B1/B2, FORECAST B1/B2 + New order > 200To), transitioning some assets on GPU (3xA100).





Different models

PFSS
(Modèle
Magnétostatique)

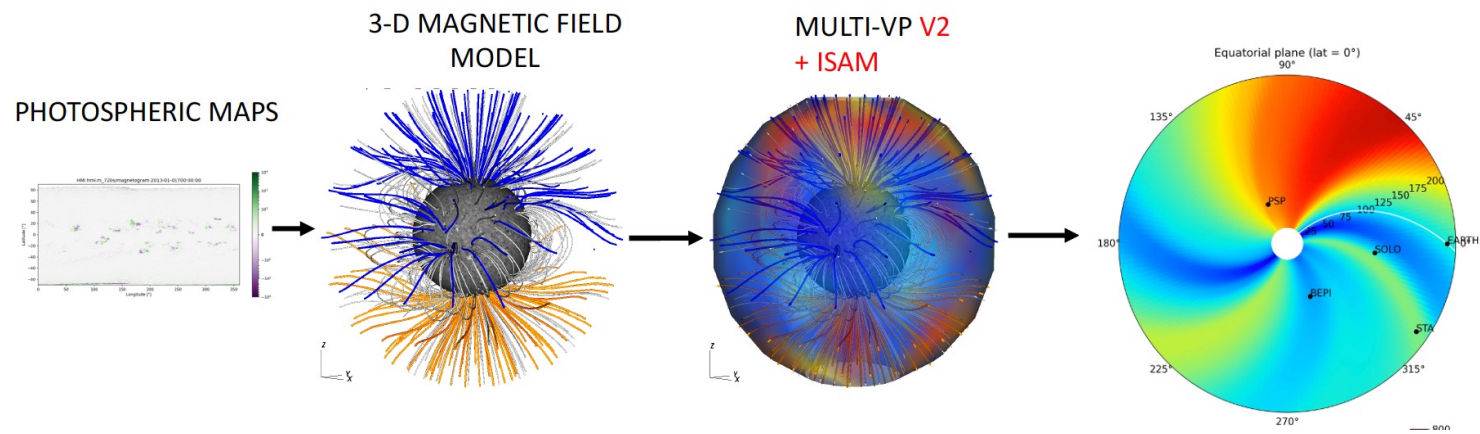
Multi-VP
(Modèle MHD de
vent solaire)

Helio1D, HelioCast
(Modèle MHD de
propagation de vent)

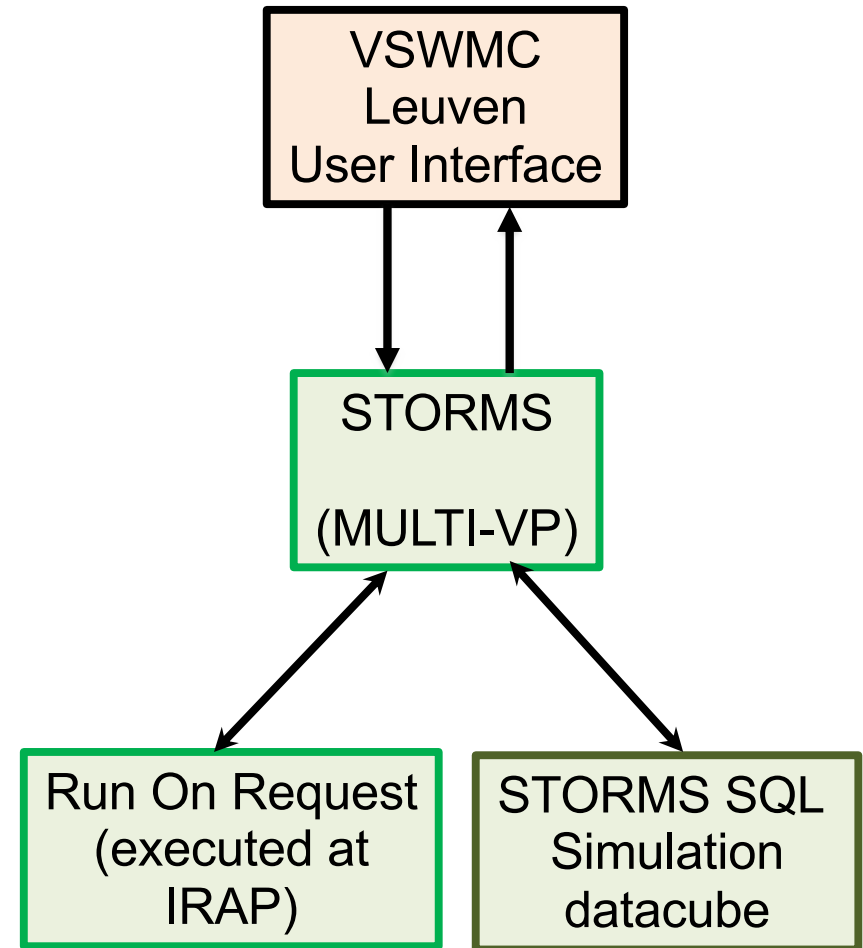
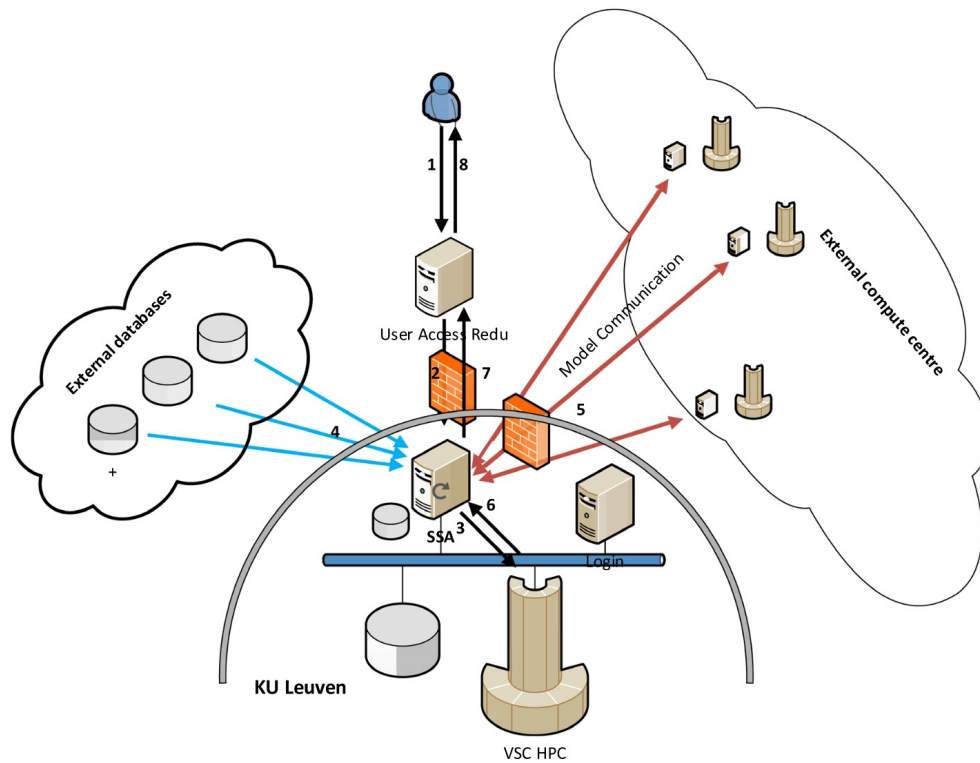
Different uses

	Every day simulation	Forecast mode	Run on request simulation
Connect-tool	X	X	
Swift	X	X	X
HelioCast	X	X	

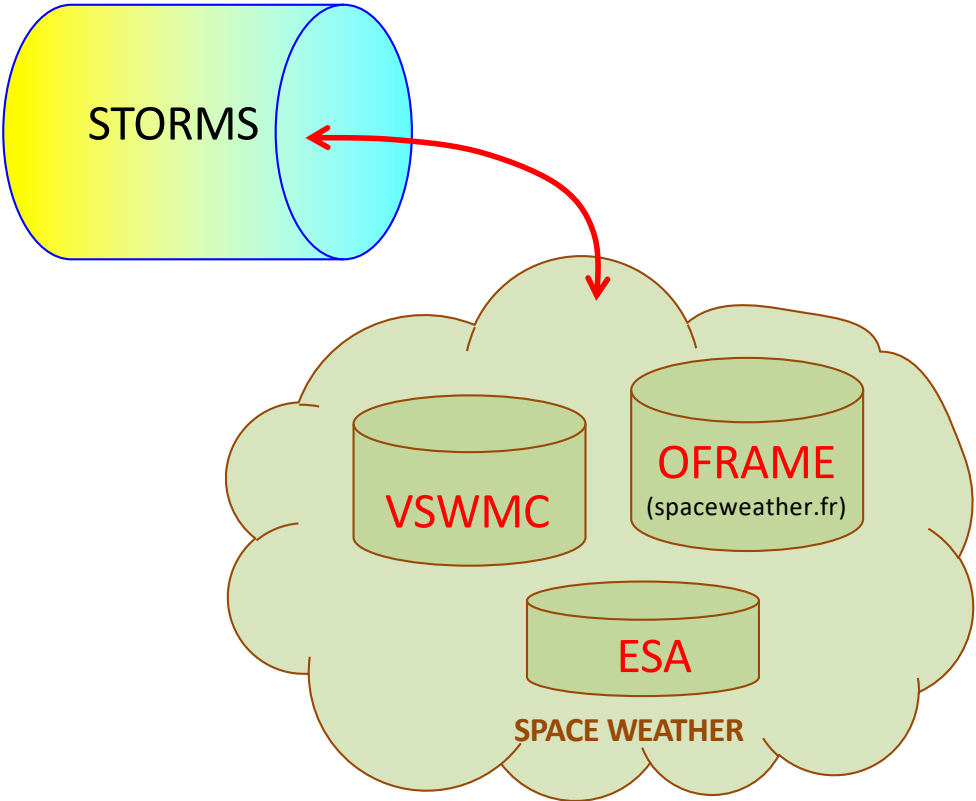
Solar wind forecasts: SWIFT-MULTI-VP (Pinto and Rouillard, 2017)



Virtual Space Weather Modelling Center



(1 solar cycle of simulations (about 168 3-D simulations))





FRENCH ORGANISATION FOR APPLIED
RESEARCH IN SPACE WEATHER

SPACE WEATHER RESEARCH

CMIN 2022 **APPEL À IDÉES !**

F
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S



SPACE WEATHER ?
OFRAME ?



SW NOWCAST
FORECAST



SW EFFECTS
ON SYSTEMS



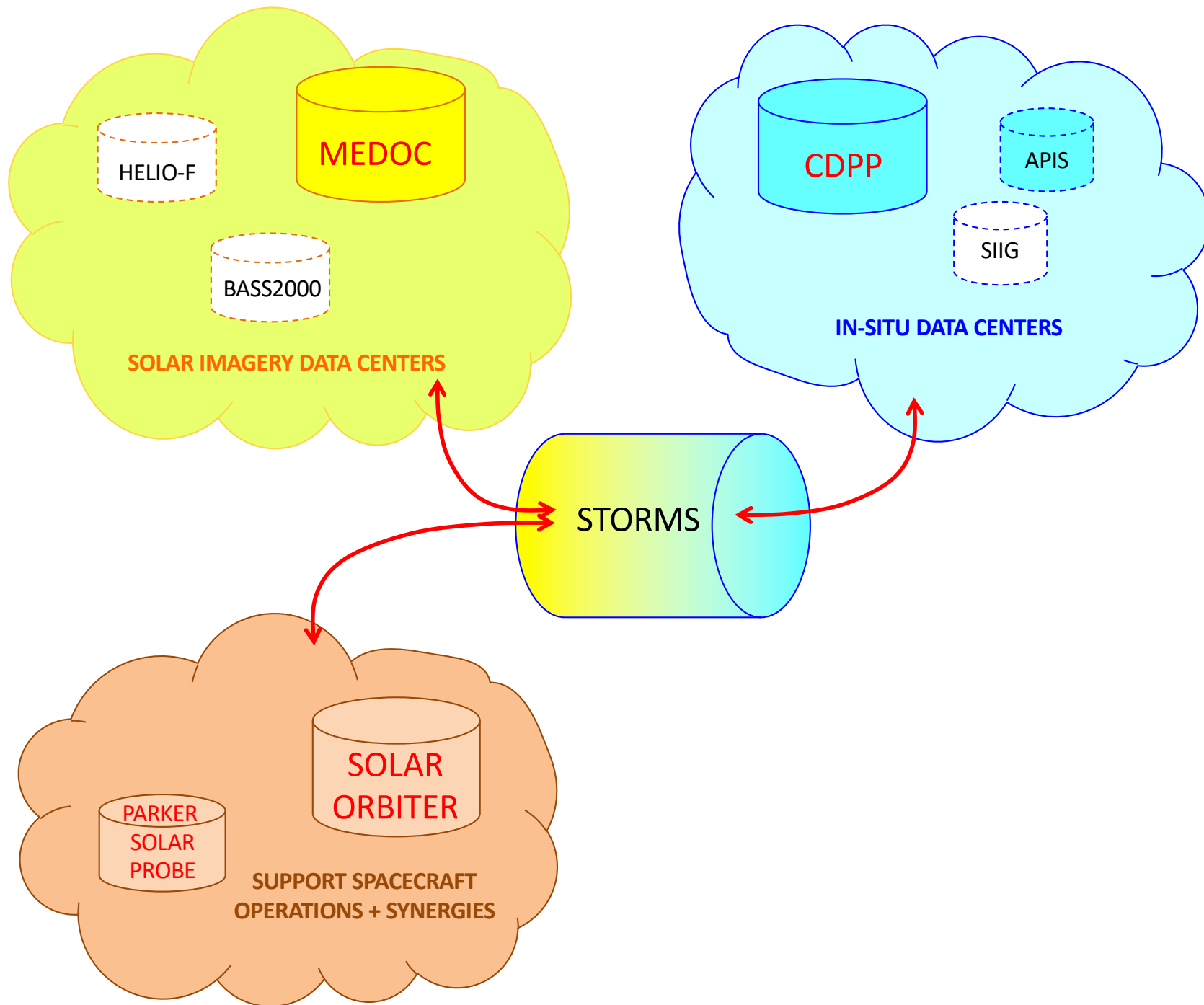
COORDINATED
ACTIVITIES

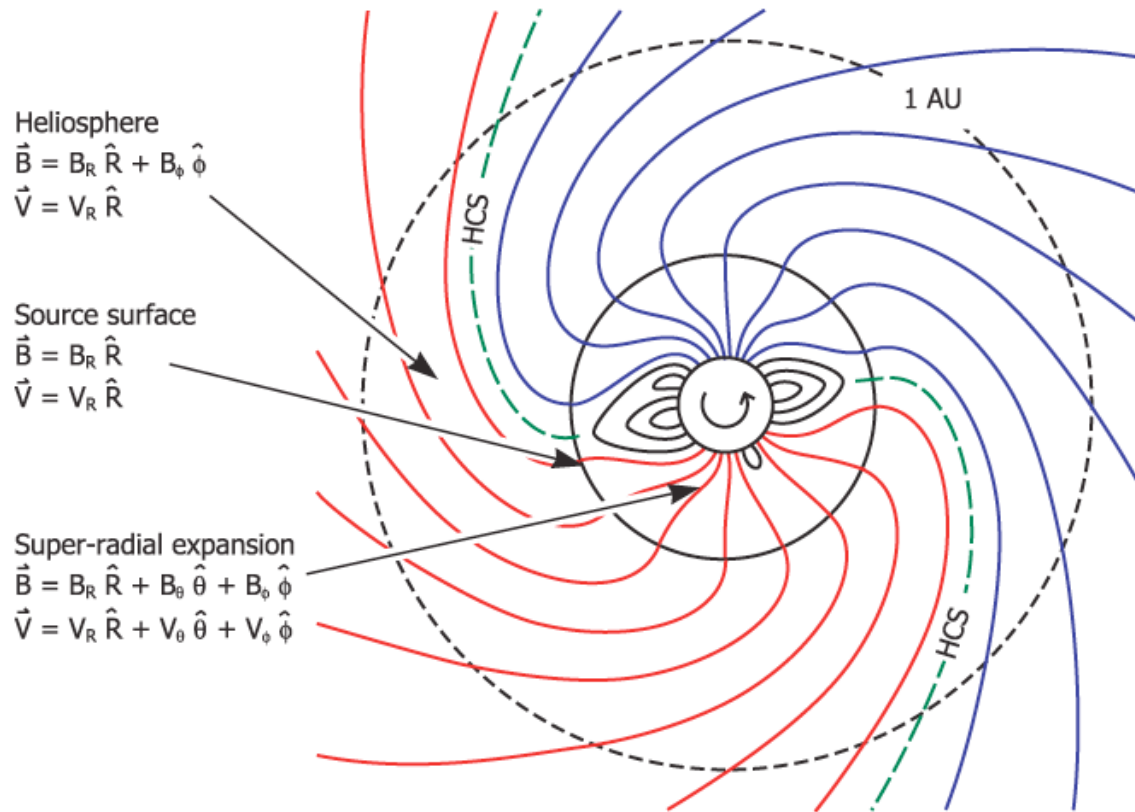


OFRAME
NEWS



SW PROJECTS
IN FRANCE





Magnetic Connectivity Tool

CHOOSE A SPACECRAFT :

- EARTH
- PSP
- STA
- ALL

INTERPLANETARY MAGNETIC FIELD :

- PARKER

CORONAL MAGNETIC FIELD :

- PFSS**
- WSO
- NSO
- ADAPT
- MFM**
- DUMFRIC

CHOOSE A REFERENCE TIME :

- SPACECRAFT TIME
- SUN TIME

CHOOSE A DATE :

25 / 01 / 2020

CHOOSE A TIME (UTC) :

- 06:00
- 12:00
- 18:00
- 00:00

Search

Magnetic Connectivity Tool

Magnetic Connectivity Tool

Home

Forecast

Shock-tool

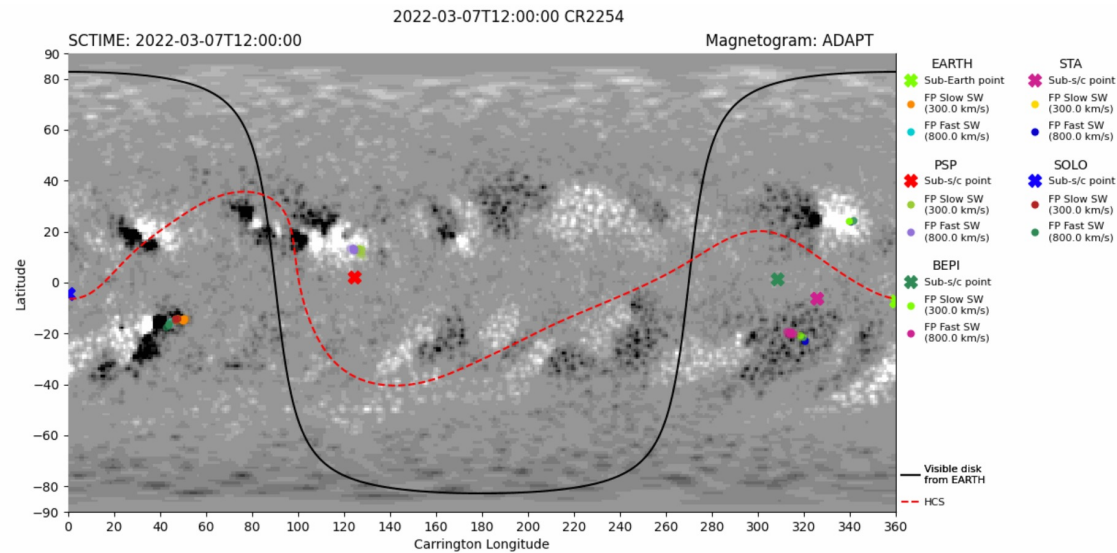
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Tutorial

Help

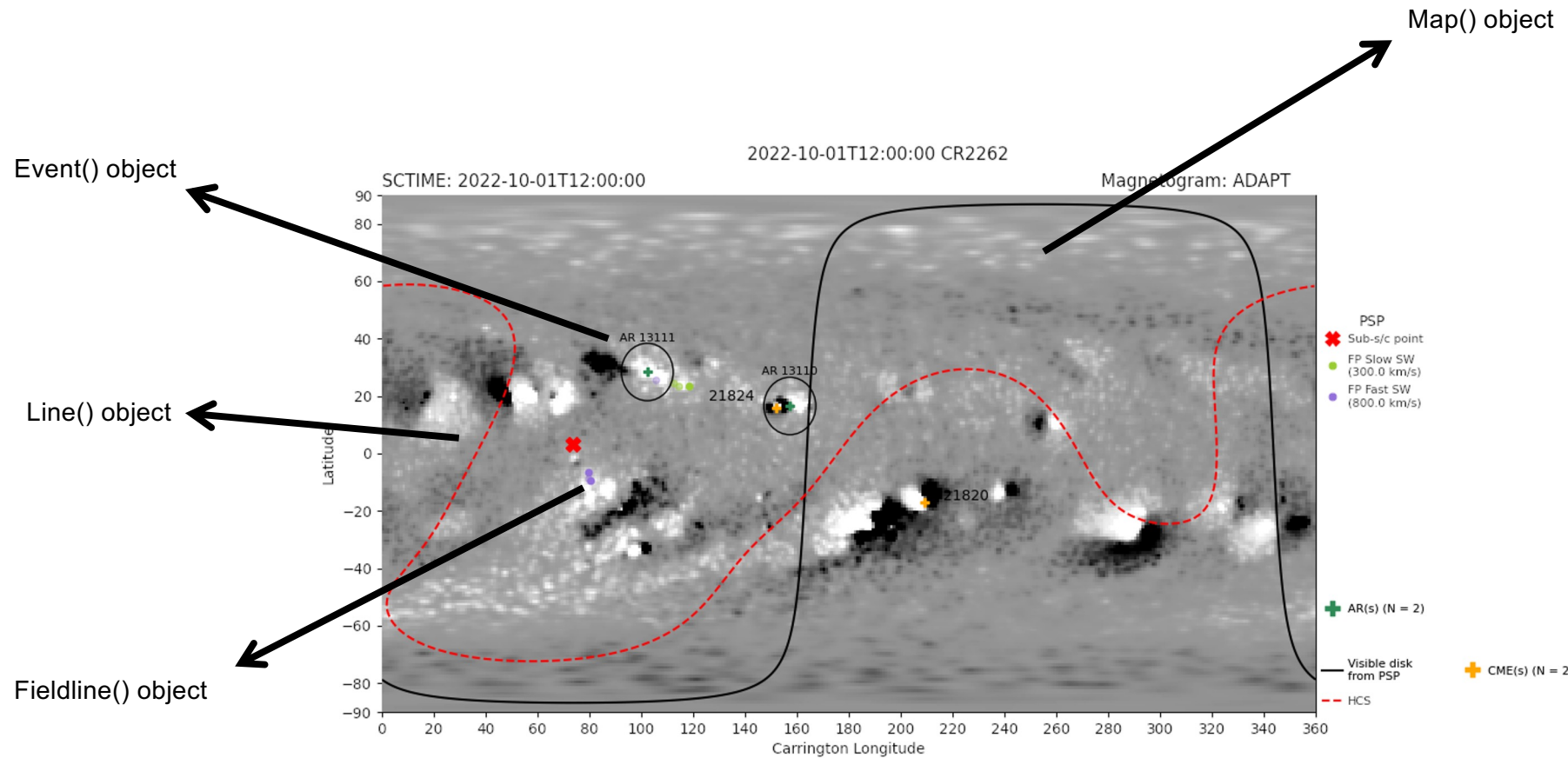
FORECAST +10

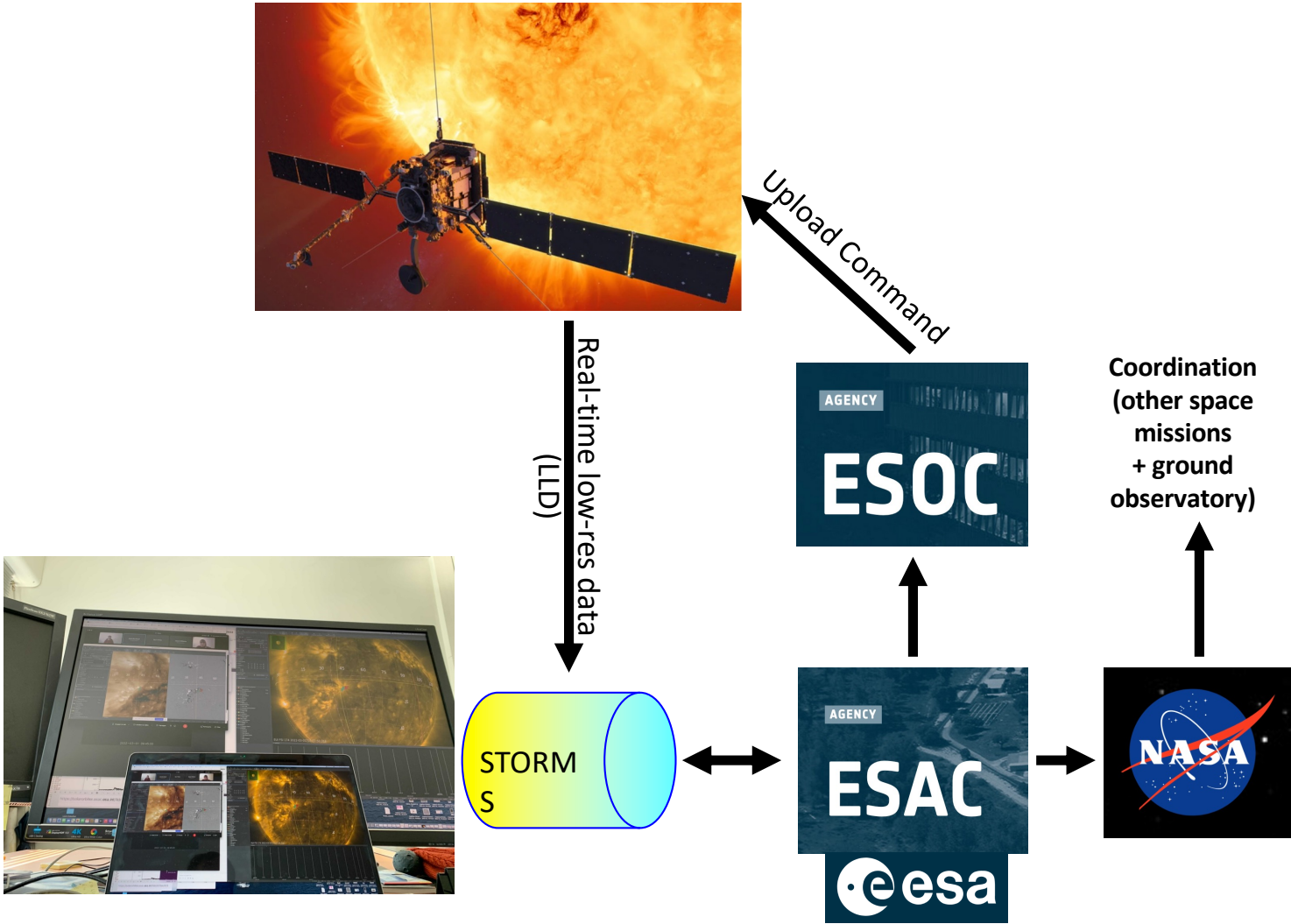


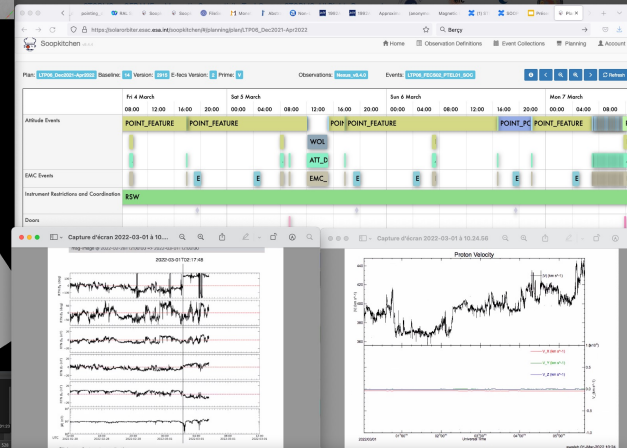
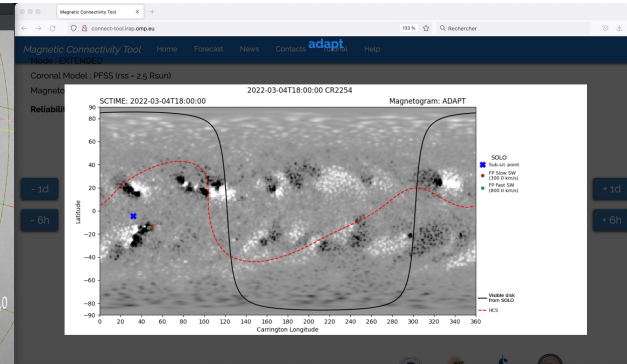
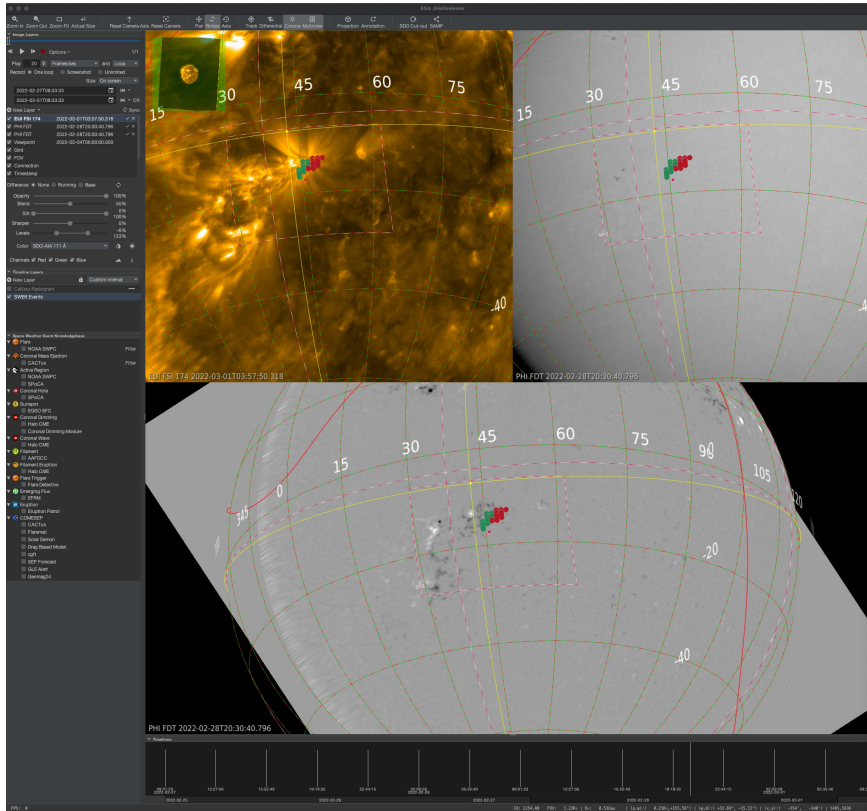
Dev 2020-2021: data assimilation to constrain models

STORMS Connect-tool Database

Delivery of a broad range of object classes produced by simulations







VSTP_UPDATE start UTC	which carried the pVSTP decision for:	SOOP coordinators	SOC guess of MADAWG involvement	T1 pass start before VSTP UTC	PTR to MOC deadline UTC	Pointing decision meeting proposal UTC	Pointing decision meeting proposal EUROPEAN	T4 Write LL before this UTC
01/03/2022 10:00	Connection mosaic 1	Alessandra Giunta, Natalia Prado, Don Hassler	YES	28/02/2022 23:50	26/02/2022 23:50	26/02/2022 15:00	26/02/2022 16:00	26/02/2022 09:33
02/03/2022 06:00	Slow wind connection	Stephanie Yardley	YES	02/03/2022 00:44	28/02/2022 00:44	28/02/2022 15:00	28/02/2022 16:00	28/02/2022 01:16
03/03/2022 18:00	update slow wind connection	Stephanie Yardley	YES	03/03/2022 12:49	01/03/2022 12:49	01/03/2022 09:00	01/03/2022 10:00	28/02/2022 23:50
05/03/2022 17:40	update slow wind connection	Stephanie Yardley	YES	05/03/2022 08:31	03/03/2022 08:31	02/03/2022 15:00	02/03/2022 16:00	02/03/2022 00:44
06/03/2022 16:40	Point pole and nanoflares (active region)	A. Zhukov (Pole) D. Berghmans, S. Parenti (Nanof)	?	06/03/2022 07:26	04/03/2022 07:26	03/03/2022 15:00	03/03/2022 16:00	03/03/2022 12:49
16/03/2022 20:30	Nanoflares (quiet and active) and slow wind connection	D. Berghmans, S. Parenti (Nanof) Stephanie Yardley (SW)	YES for SW connection ? For nanoflares	16/03/2022 07:13	14/03/2022 07:13	13/03/2022 15:00	13/03/2022 16:00	13/03/2022 11:02
17/03/2022 13:30	update slow wind connection	Stephanie Yardley	YES	17/03/2022 07:08	15/03/2022 07:08	14/03/2022 15:00	14/03/2022 16:00	14/03/2022 07:24
18/03/2022 16:20	update slow wind connection	Stephanie Yardley	YES	18/03/2022 07:04	16/03/2022 07:04	15/03/2022 15:00	15/03/2022 16:00	15/03/2022 09:30
19/03/2022 16:20	update slow wind connection	Stephanie Yardley	YES	19/03/2022 07:01	17/03/2022 07:01	16/03/2022 15:00	16/03/2022 16:00	16/03/2022 07:13
20/03/2022 16:20	update slow wind connection	Stephanie Yardley	YES	20/03/2022 09:20	18/03/2022 09:20	17/03/2022 15:00	17/03/2022 16:00	17/03/2022 07:08
29/03/2022 16:20	Nanoflares (active region), point pole, connection mosaic 2	D. Berghmans, S. Parenti (Nanof) A. Zhukov (Pole) Alessandra Giunta, Natalia Prado, Don Hassler (mosaic)	? For nanoflares, pole YES for mosaic	29/03/2022 06:59	27/03/2022 06:59	26/03/2022 15:00	26/03/2022 16:00	26/03/2022 10:40
31/03/2022 13:10	Long term active region	Luis Bellot, D. Berghmans, M. Janvier	?	31/03/2022 06:13	29/03/2022 06:13	28/03/2022 14:00	28/03/2022 16:00	28/03/2022 06:57
01/04/2022 16:30	update long term active region	Luis Bellot, D. Berghmans, M. Janvier	?	01/04/2022 07:07	30/03/2022 07:07	29/03/2022 14:00	29/03/2022 16:00	29/03/2022 06:59
02/04/2022 16:40	update long term active region	Luis Bellot, D. Berghmans, M. Janvier	?	02/04/2022 07:10	31/03/2022 07:10	30/03/2022 14:00	30/03/2022 16:00	30/03/2022 07:01
03/04/2022 16:40	update long term active region, point pole	Luis Bellot, D. Berghmans, M. Janvier A. Zhukov (Pole)	?	03/04/2022 07:13	01/04/2022 07:13	31/03/2022 14:00	31/03/2022 16:00	31/03/2022 06:13

Not huge margin wrt MOC deadline

Tightish wrt the decision meeting

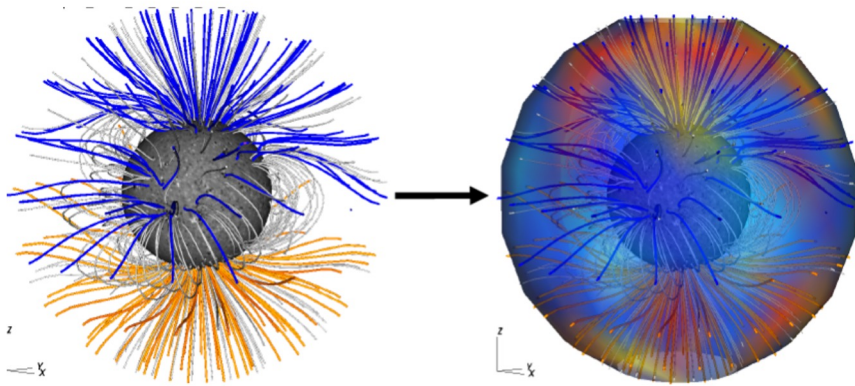
Summertime started

N.B. T4 is NOT accounting for the SOC LL "end-of-pass" delay

N.B. Point decision meeting starttime restricted to the range [10:00, 16:00] local
SOOP coords can request to move meetings where needed for US participants.
Meeting duration assumed as 2 hours

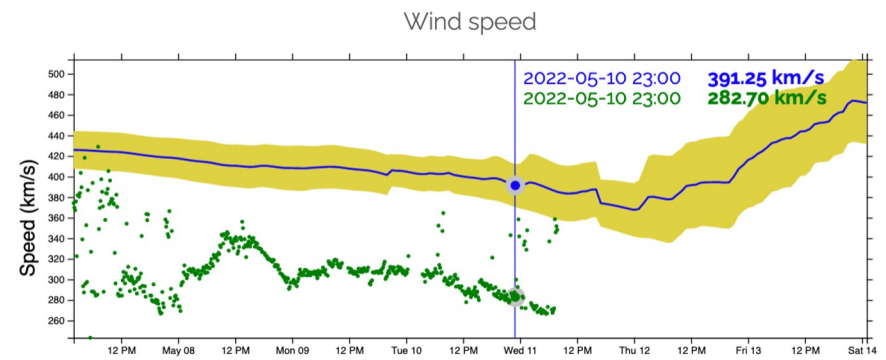
Weekend

MULTI-VP → HELIOCAST / Helio1D



Fieldline() object

Cube() object



Timeserie() object

Metadata of simulation datafiles

•Stored in a sqlite database

•Key word based on Impex-Spase data model

- `<TemporalDescription>`
 - `<TimeSpan>`
 - `<StartDate>date or cr</StartDate>`
 - `<StopDate>date or cr</StopDate>`
 - `</TimeSpan>`
- `</TemporalDescription>`
- `<CoordinateSystem>`
 - `<CoordinateRepresentation>Spherical</CoordinateRepresentation>`
 - `<CoordinateSystemName>Heliographic</CoordinateSystemName>`
- `</CoordinateSystem>`
- `<SpatialDimension>2</SpatialDimension>`
- `<Units>degree degree</Units>`
- `<CoordinatesLabel>latitude longitude</CoordinatesLabel>`
- `<ValidMin>-90. 90.</ValidMin>`
- `<ValidMax>0. 360.</ValidMax>`