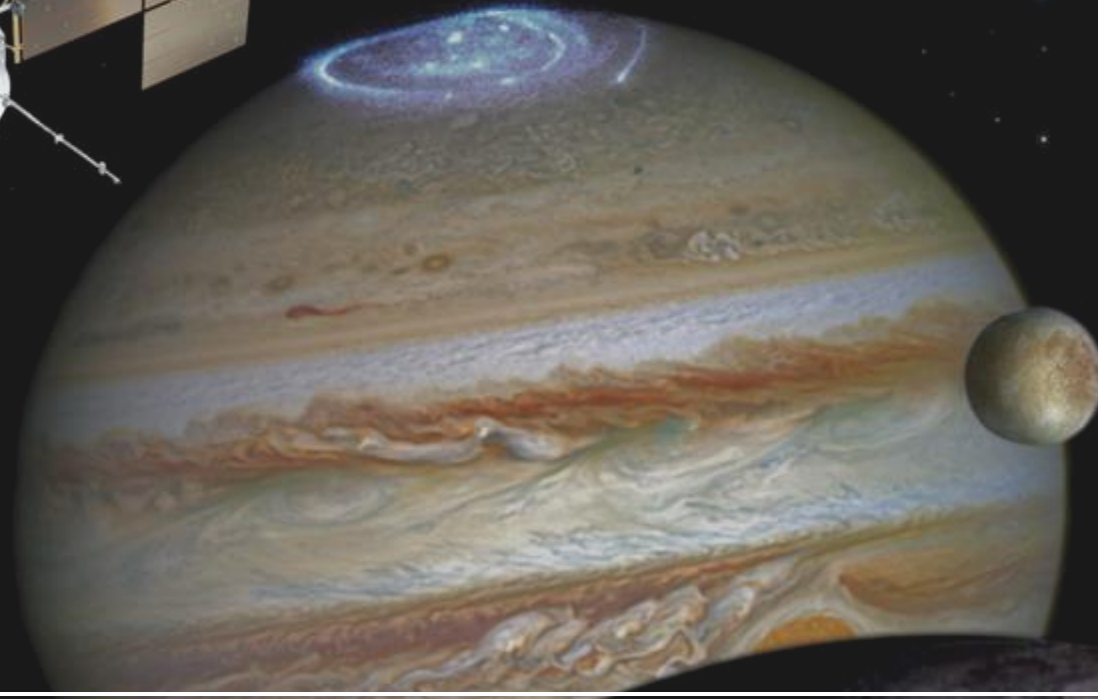




→ THE EUROPEAN SPACE AGENCY



Emma Vellard

24 January 2024

Empowering researchers with comprehensive data access for the ESA's Juice Mission

The context

Different user cases

- How to find the **workshop presentations** about galilean moons in 10 years?
- Where are the **pictures** and **videos** of the Juice mission?
- Where to find all the **spectral data** to study surface characteristics?
- What are the **engineering details** on the JUICE design? (we get many questions on that topic already)

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Current problems

- All usefull database are **spread over internet**,
- The pictures, videos are stored into people own computers or **spread on different databases**,
- The workshop presentations are **difficult to find** or **only accessible for attendees**.

Future problems (at the start of the nominal mission)

- **Industrial contacts** will be lost and authorization to publish relevant documents will be difficult to obtain.

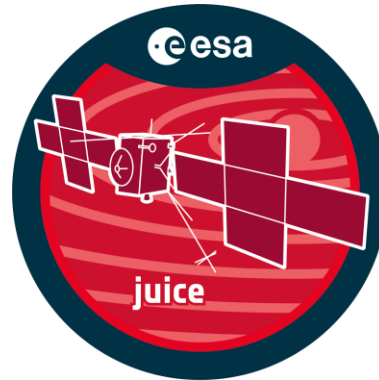
How to solve it?

The solution

What is it about?

A **user friendly platform** containing a wealth of information regarding the **Juice** mission.

Streamline and **enhance** the researcher process by gaining valuable insights into the mission' data.



Not the archive of the instrument data!

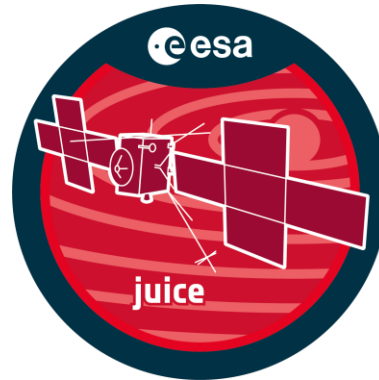
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Who is it for?

Researchers
Students from MSc. level
Informed public



Where to find it?

Still under discussion.
Cosmos page of Juice linked to an ftp server.
Beta of the platform in May.

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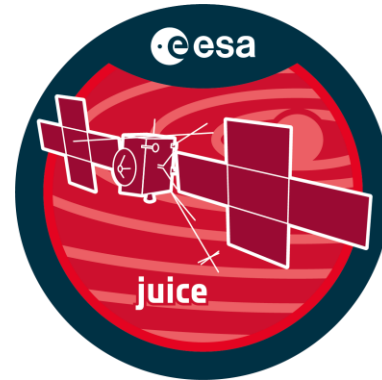
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Currently we have collected around **2500 items** for **45GB**. This content is intended to be extended within the next months.

Not the archive of the instrument data!

What does it contain?

Mission

Timeline and attitude

Targets

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Spacecraft

Trajectory – list of the main events once the nominal mission trajectory will be defined

CAD models of the Juice spacecraft and instruments – reference 3D models distributed by the SOC

Industry documents: **AIRBUS distribution** with cleared public released aspect

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Science

Link to the **instrument's future data** in the archive and to other data environments (plasma, surface)

Scientific publication – link to the important releases about the Juice mission and essential scientific papers

Workshop and conference **presentations** – the access to these documents is currently restricted to the attendees

Useful **databases**: other planetary mission, spectroscopy, photoionization – collection of the essential databases

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Outreach

General presentations: science of Juice, power/mass, subsystems, instruments – summary of the useful information

Education materials – for the teachers and students outreach with different academic levels

Pictures and videos: instruments, assembly, launch, launcher, solar array, group pictures, transportation, The Making of Juice

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Resources

Contact points in the different working groups or PI groups

Tools – list of the most useful tools

Some additional information

The archiving

Different options are used to facilitate the research :

- **Keywords** are defined depending on the type of documents,
- The documents are divided in **different categories**,
- They can be downloaded straight from the cosmos Juice webpage.
- A **search function** among the document content is currently developed within ESA.

Example of various documents stored on the ftp server

Name	Size	Modified
1. Mission		12/14/23
Callisto_Voyager_GalileoSSI_global_mosaic_1km_E.tif	50.0 MB	12/14/23
Europa_Voyager_GalileoSSI_global_mosaic_500m_E.tif	85.9 MB	12/14/23
Ganymede_Voyager_GalileoSSI_Global_ClrMosaic_1435m.tif	190.0 MB	12/14/23
Ganymede_Voyager_GalileoSSI_global_mosaic_1km_E.tif	61.9 MB	12/14/23
Io_Galileo_SSI_Global_Mosaic_ClrMerge_1km.tif	187.5 MB	12/14/23
Io_GalileoSSI-Voyager_Global_Mosaic_1km.tif	62.5 MB	12/14/23
2. Spacecraft		12/11/23
AIRBUS distribution		12/14/23
AIRBUS_Budgets_Report.pdf	4.3 MB	12/12/23
AIRBUS_CAD_images_with_annotations.pdf	2.5 GB	12/14/23
AIRBUS_CAD_Models.pdf	2.1 MB	12/12/23
AIRBUS_Electric_Cleanliness_Report.pdf	12.9 MB	12/12/23
AIRBUS_Magnetic_Cleanliness_Report.pdf	4.0 MB	12/12/23
AIRBUS_Micro-vibration_Analysis_Report.pdf	7.7 MB	12/12/23
AIRBUS_Mission_Calendar.pdf	2.0 MB	12/12/23
AIRBUS_NavCam_Design_Description.pdf	1.5 MB	12/12/23
AIRBUS_Pictures_JUICE_Integration.pdf	33.9 MB	12/12/23
AIRBUS_Radiation_Effects_Modelling_Report.pdf	1.8 MB	12/12/23
AIRBUS_Spacecraft_Alignment_Budget_Report.zip	3.9 MB	12/14/23
AIRBUS_Spacecraft_Charging_Analysis_Report.pdf	9.3 MB	12/12/23
AIRBUS_Spacecraft_Design_Report.pdf	11.7 MB	12/12/23
AIRBUS_Spacecraft_EMCTest_Report.pdf	29.6 MB	12/12/23
AIRBUS_Spacecraft_House-Keeping_Telemetry.pdf	1.1 MB	12/12/23
AIRBUS_Spacecraft_Magnetic_Test_Report.pdf	38.0 MB	12/12/23
AIRBUS_Spacecraft_Radiation_Model.pdf	1.0 MB	12/12/23
AIRBUS_Spacecraft_Telemetry_Needs.pdf	0.8 MB	12/12/23
AIRBUS_Thermal_Control_Interface_Document.pdf	18.0 MB	12/12/23
AIRBUS_Thermo-elastic_Test_Report.zip	6.8 MB	12/14/23
3. Science		01/17/24
Workshops		01/17/24
SSW16 Aranjuez 2024		01/17/24
2024_Aranjuez_Poster_Vellard.pptx	0.6 MB	01/17/24
2024_Aranjuez_Talk_Vellard.pptx	7.7 MB	01/17/24
Juice_Red_Book.pdf	7.5 MB	12/14/23
Juice_Yellow_Book.pdf	37.8 MB	12/14/23

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- A **search function** among the document content is currently developed within ESA.

A collaborative project

Require the **participation** of the **Juice community** for:

- Workshop presentation **archiving**,
- **Contact point** in the different groups,
- **Beta testers** in May,
- **Remarks, feedbacks** and **ideas**.

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AIRBUS_Micro-vibration_Analysis_Report.pdf	7.7 MB	12/12/23
AIRBUS_Mission_Calendar.pdf	2.0 MB	12/12/23
AIRBUS_NavCam_Design_Description.pdf	1.5 MB	12/12/23
AIRBUS_Pictures_JUICE_Integration.pdf	33.9 MB	12/12/23
AIRBUS_Radiation_Effects_Modelling_Report.pdf	1.8 MB	12/12/23
AIRBUS_Spacecraft_Alignment_Budget_Report.zip	3.9 MB	12/14/23
AIRBUS_Spacecraft_Charging_Analysis_Report.pdf	9.3 MB	12/12/23
AIRBUS_Spacecraft_Design_Report.pdf	11.7 MB	12/12/23
AIRBUS_Spacecraft_EMCTest_Report.pdf	29.6 MB	12/12/23
AIRBUS_Spacecraft_House-Keeping_Telemetry.pdf	1.1 MB	12/12/23
AIRBUS_Spacecraft_Magnetic_Test_Report.pdf	38.0 MB	12/12/23
AIRBUS_Spacecraft_Radiation_Model.pdf	1.0 MB	12/12/23
AIRBUS_Spacecraft_Telemetry_Needs.pdf	0.8 MB	12/12/23
AIRBUS_Thermal_Control_Interface_Document.pdf	18.0 MB	12/12/23
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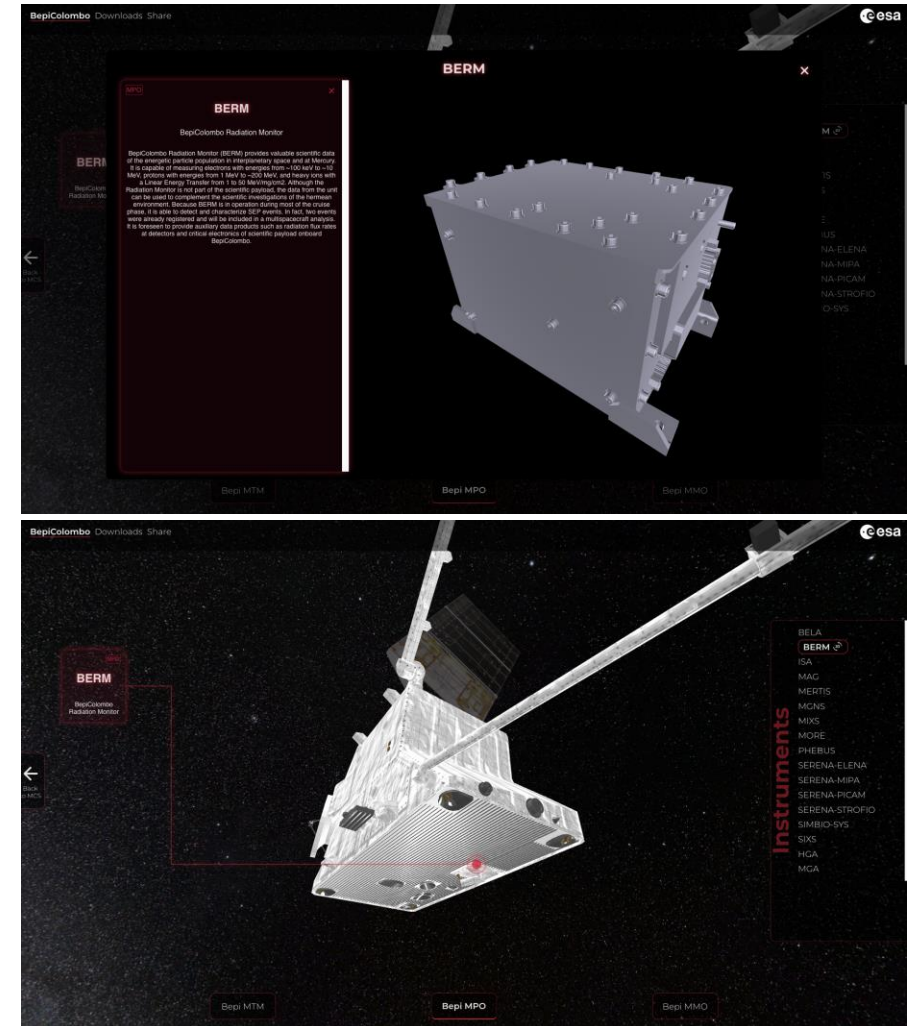
Possible ideas

Interactive 3D model of the spacecraft

Access to the information related to each **instrument**:

- link to its data,
- mode of operation,
- papers,
- PI contact point,
- pictures.

[BepiColombo interactive 3D model](#)



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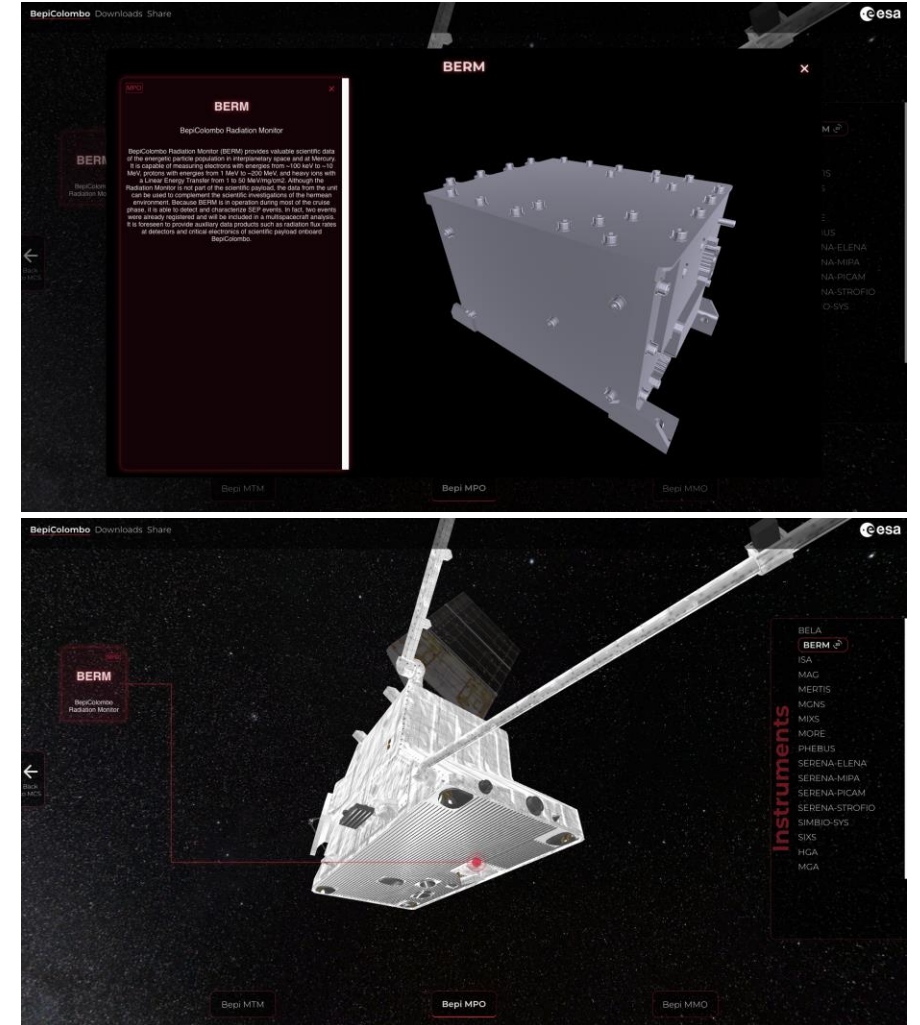
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Interactive timeline

Display of the **spacecraft status information** according to **specific events**:

- mode of operation of the instruments,
- possible link to Clipper data.

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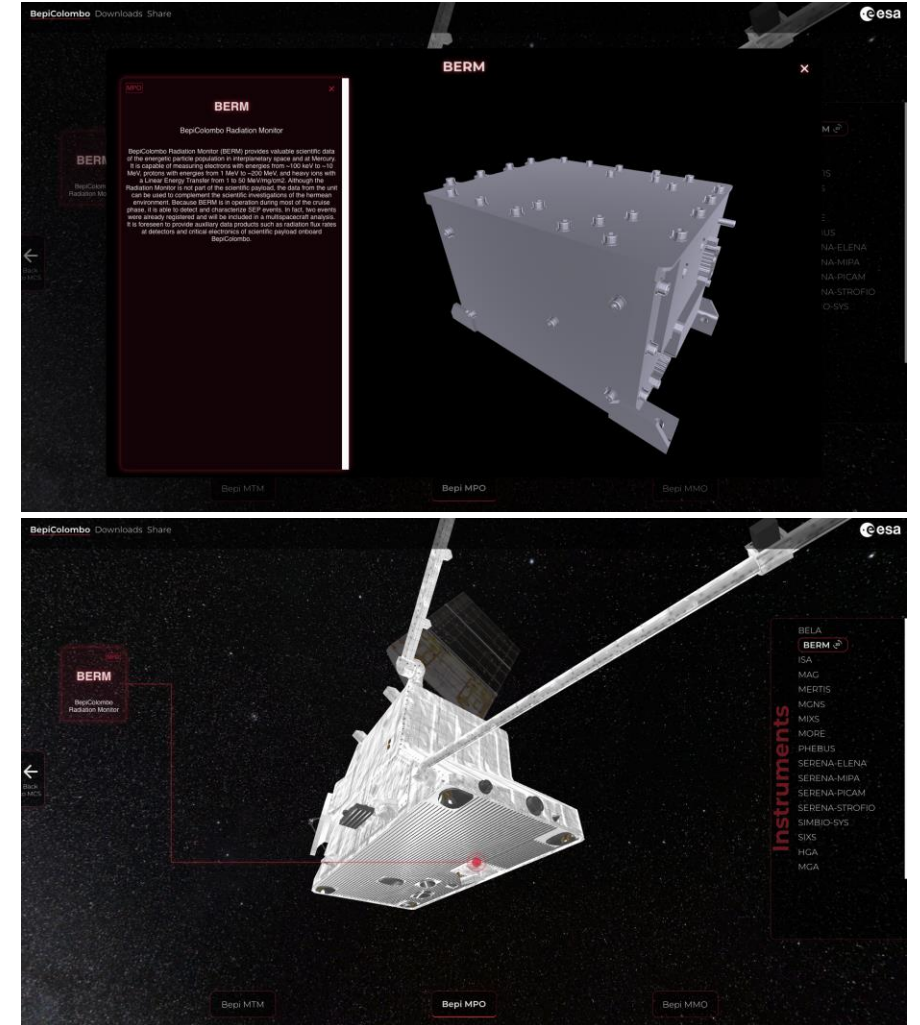
Forum

A place for different teams to:

- **discuss** specific events or topics,
- stay informed of the **latest updates**.

A second version might be an open page to discuss with an **informed public**.

[BepiColombo interactive 3D model](#)



Key takeaways



Download the **poster** of the talk here

Any remarks, ideas? You can complete [this form](#)



A **platform** containing all the **useful information** related to the **Juice** mission (spacecraft, science, tools ..)

The goal is to give a **comprehensible**, and **easily accessible information** to conduct in-depth analysis and gain valuable insights into the Juice mission's data.

The project is still **under development** so can be **adapted** to new requirements or ideas.

It will be a **collaborative project** that will **need the Juice community** in the coming years to stand.