Research Infrastructures and their important role in the Copernicus in-situ program

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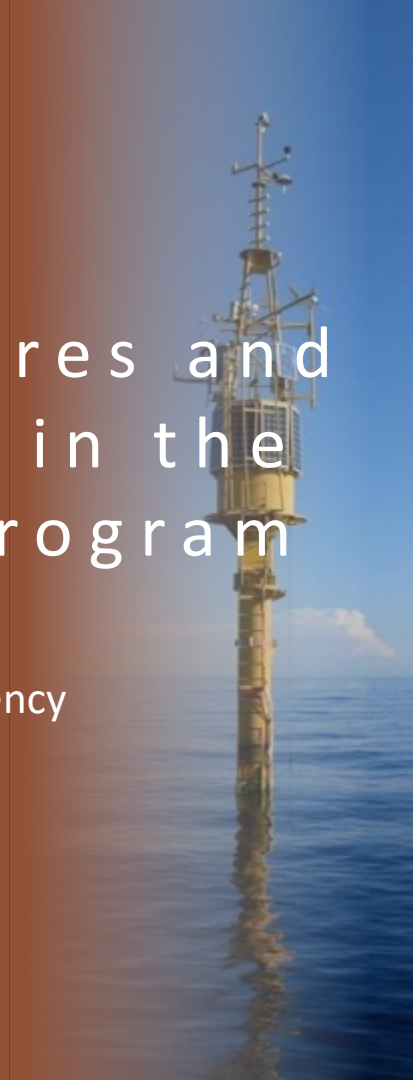

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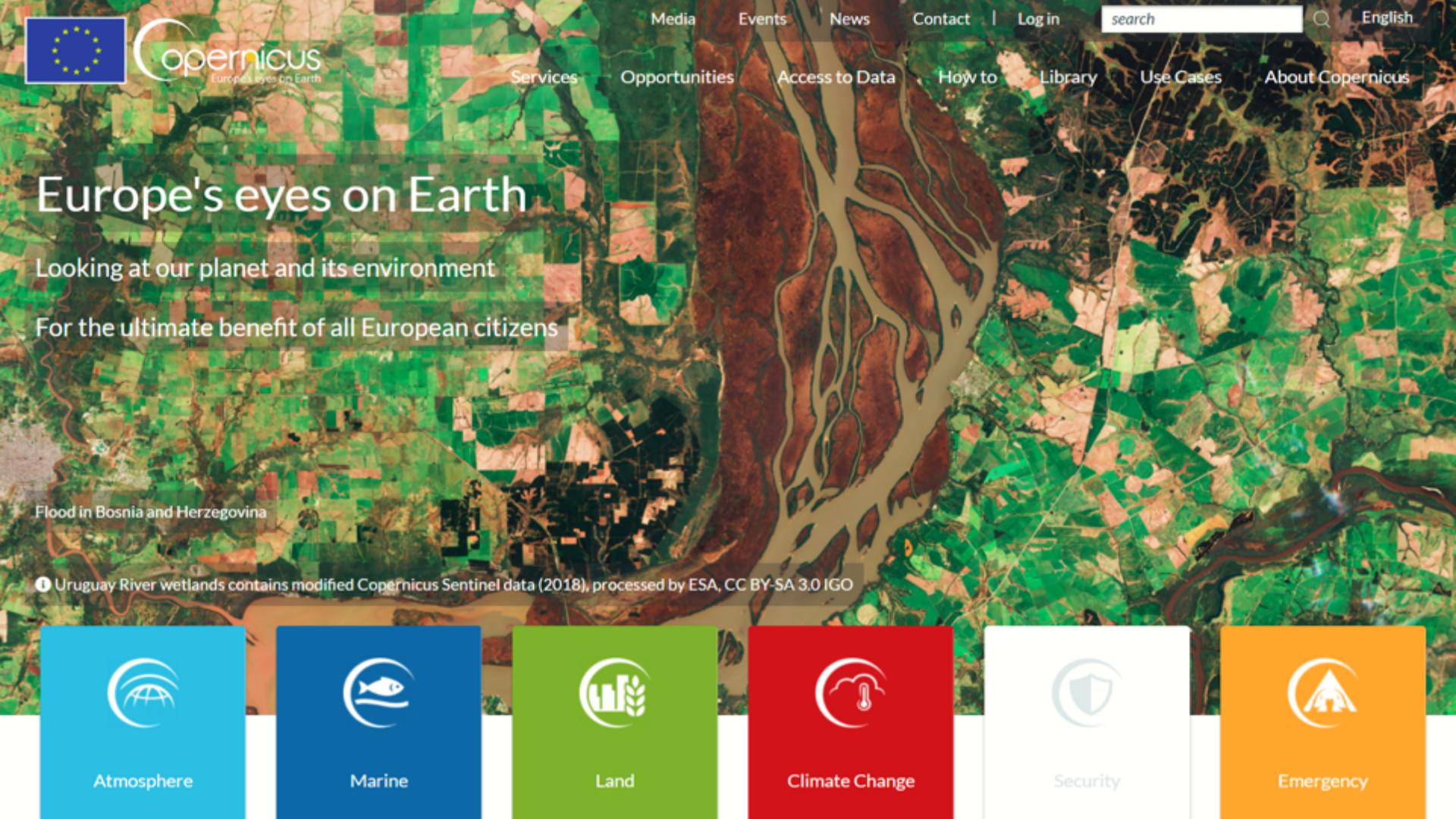
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Setting the scene

- **Copernicus is a great success** and offers excellent Data and Information products to the users;
- **In situ data constitutes an essential part of the foundation** for the success of Copernicus;
- Copernicus relies predominately on **existing 'in situ data' capacities**;
- Copernicus collects and uses an **enormous amount of in situ data on** a routine basis;
- The **in situ data community benefits** from its cooperation with Copernicus;
- Copernicus **provides important data** (e.g. ERA5 reanalysis) back to data providers

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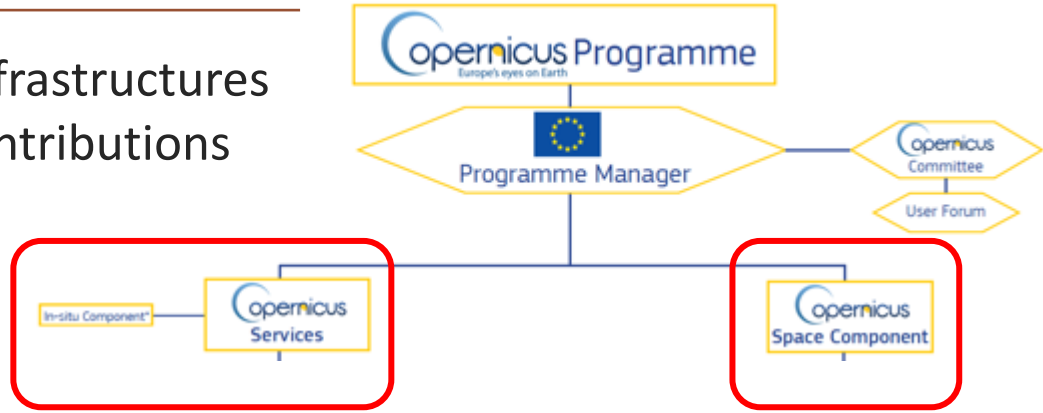
The Copernicus in situ component

Provides reliable and sustainable access to in situ data, relying on existing capacities operated at national and European level, and global observing systems;

Is implemented by the Services, and the EEA steps in when cross-cutting coordination is required;

Member states' in situ infrastructures and data are essential contributions to Copernicus.



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Known key challenges

Copernicus needs to find solutions to key challenges

- Coverage
- Timeliness
- Data gaps
- Data quality
- Data policy
- Accessibility
- Sustainability
- Complexity

"Stable and sustained long-term solutions are needed"

"Use restrictions are often incompatible with Copernicus' data policy"

"Acknowledgement and attribution of ownership"

"Sustainability of in situ observing systems remains a strong concern"

"Access to locally available observations"

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EEA's main cross-cutting activities

Maintain an overview of the Copernicus In Situ Component

Improve access to selected in situ data

Raise awareness about the Copernicus In Situ Component

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The benefits of coordination

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- Building partnerships
  - European data providers and networks
  - Non-European data providers
  - International cooperation
- Data collection and sharing
- Overview & information gathering
- Knowledge sharing
- Awareness raising and use cases
- Support to internal coordination

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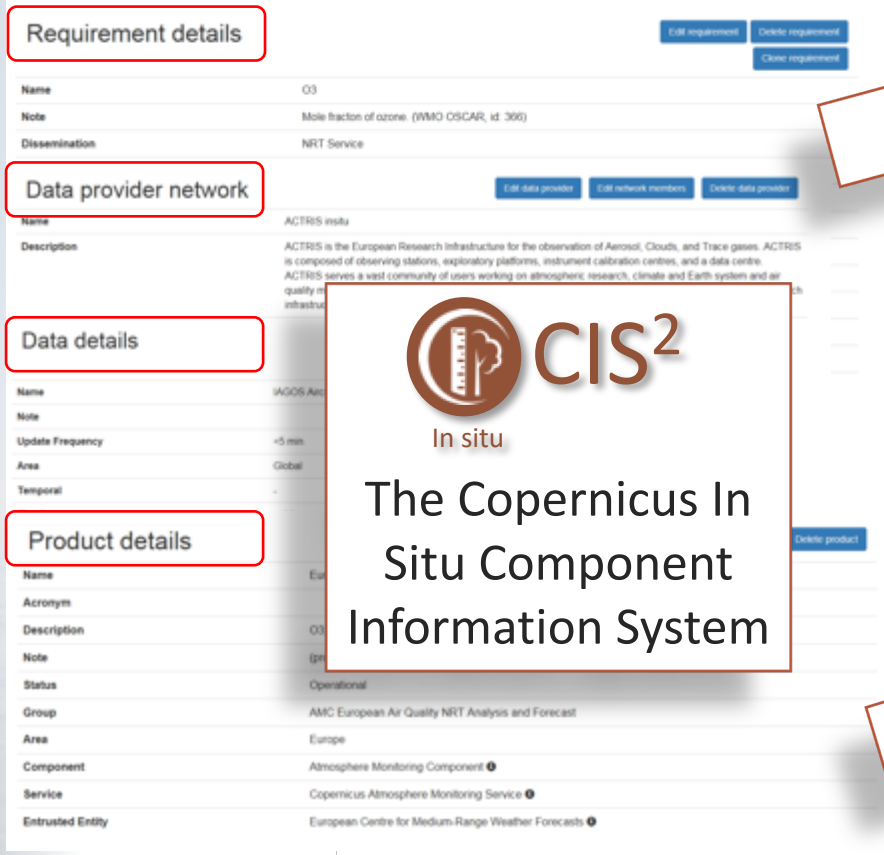
Creating an overview



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The Copernicus In Situ Component Information System

Fact Sheets

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Raising the awareness

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Geoscience Australia provides atmospheric spectrometers to support Sentinel validation

Geoscience Australia, the Australian public geoscience or … has installed and deployed a pair of spectrometers capable of measuring concentrations of trace gases in the Earth' … sulphur dioxide, ozone and nitrogen dioxides). … these instruments supports validation … veral of the Copernicus Sentinels. The

The 3rd ICOS Science Conference 2018

… e Conference will be organised in Prague, Czech Republic from Tuesday … rogramme is currently under planning, Monday 10th and … vents, so be sure to reserve the whole …

Atmosphere Observations

How in situ data brings air quality and greenhouse gas emissions into focus

The Copernicus Atmosphere Monitoring Service (CAMS) relies on a range of in situ observations. Member State monitoring networks, European Research Infrastructures and international partnerships all contribute towards bringing air quality and greenhouse gas (GHG) emission into focus for the operational service.

This map shows the twenty-sixth highest Ozone (O3) value in Europe based on daily max 8-hour averages with at least 75% of valid measurements, in µg/m3 (source: EEA, AirBase v.8 & AQ e-Reporting)

Air pollution is a threat to both the environment and human health, and is an increasing

… Observations

Operational use of in situ data at EUMETSAT: Interview with Bojan Bojkov

Jun 15, 2018

Policy Spatial data Observations

In situ data of various kinds is used operationally to verify satellite data products and calibrate satellite instruments. Dr. Bojkov, Head of the Remote Sensing and Products Division in the Department of Technical Support and Science at EUMETSAT, explained the close links between space and in situ data, and the [...]

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Recent results of Copernicus in situ

- Licensing agreement between EEA and EUMETNET giving access to hydrological, meteorological and climatological data held by EUMETNET members
- Improving the availability of non-European weather and oceanography data through engagement with WMO, IOC, and the Commission for Hydrology (CHy)
- Cooperation Arrangements with countries outside Europe: Australia, Brazil, Chile, Colombia, India, Serbia, Ukraine
- Connecting with European Research Infrastructures, through forums such as the European Environmental Research Infrastructures (ENVRI), alongside engagement on specific themes, such as the sustainability of Total Carbon Column Observing Network (TCCON)
- Mapping Arctic data availability
- Engaging with relevant Horizon 2020 projects such as AtlantOS, INTAROS, JERICO-NEXT, and MONOCLE, KEPLER

Key observing systems' sustainability

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The EEA is striving to document key observing network's level of sustainability.

With a view to influencing decision makers at national and European level.

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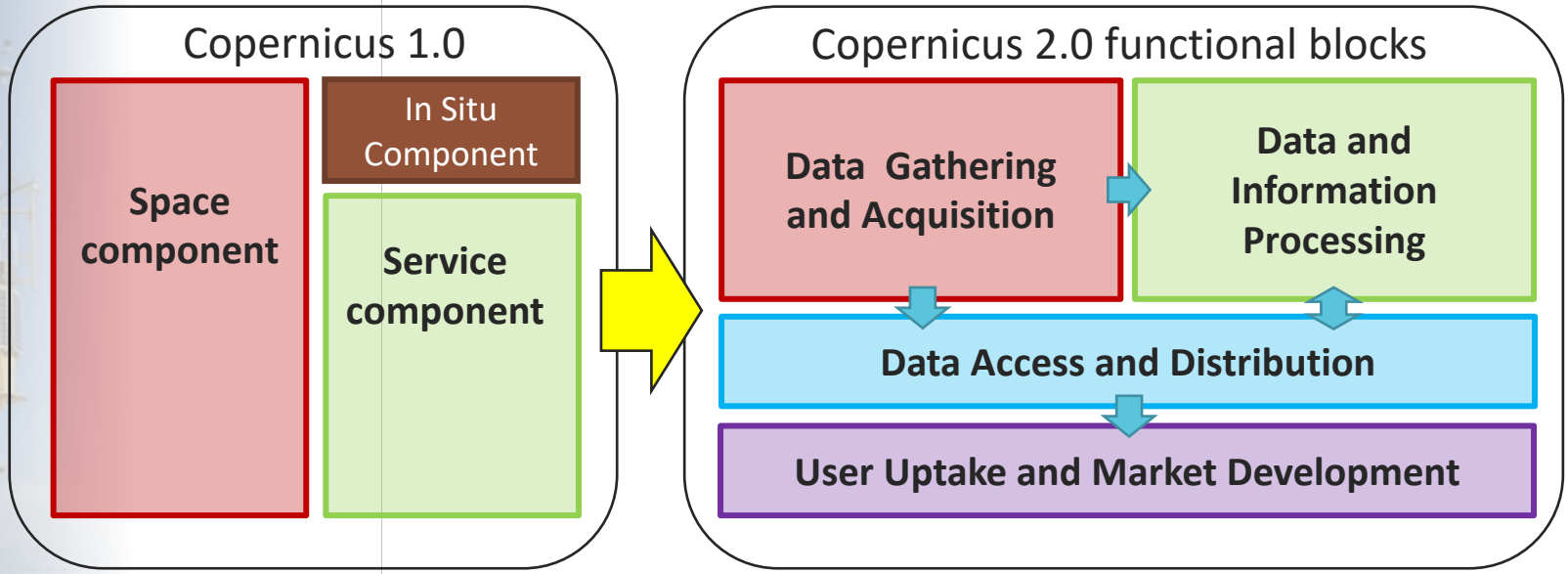
Moving towards Copernicus 2.0



Copernicus shall comprise four elements, namely:

(a) **data acquisition** which shall include:

- the development and operations of the Copernicus Sentinels;
- access to third party space-borne Earth Observation data;
- access to **in situ and other ancillary data**;

The New Space Regulation (TBC)

10b. Research infrastructures, in particular **in situ observing networks will constitute essential elements** of the in situ observation infrastructure enabling the Copernicus Services.

48. Where feasible and appropriate, it should also **make use of the available in situ and ancillary data provided mainly by the Member States** in accordance with Directive 2007/2/EC20. The Commission should work together with the Member States and the European Environment Agency to ensure an efficient access and use of the in-situ data sets for Copernicus.

55. The Commission and Member States should **work together to develop the in-situ component of Copernicus** and to facilitate the integration of in-situ datasets with space datasets for upgraded Copernicus services.

For more information

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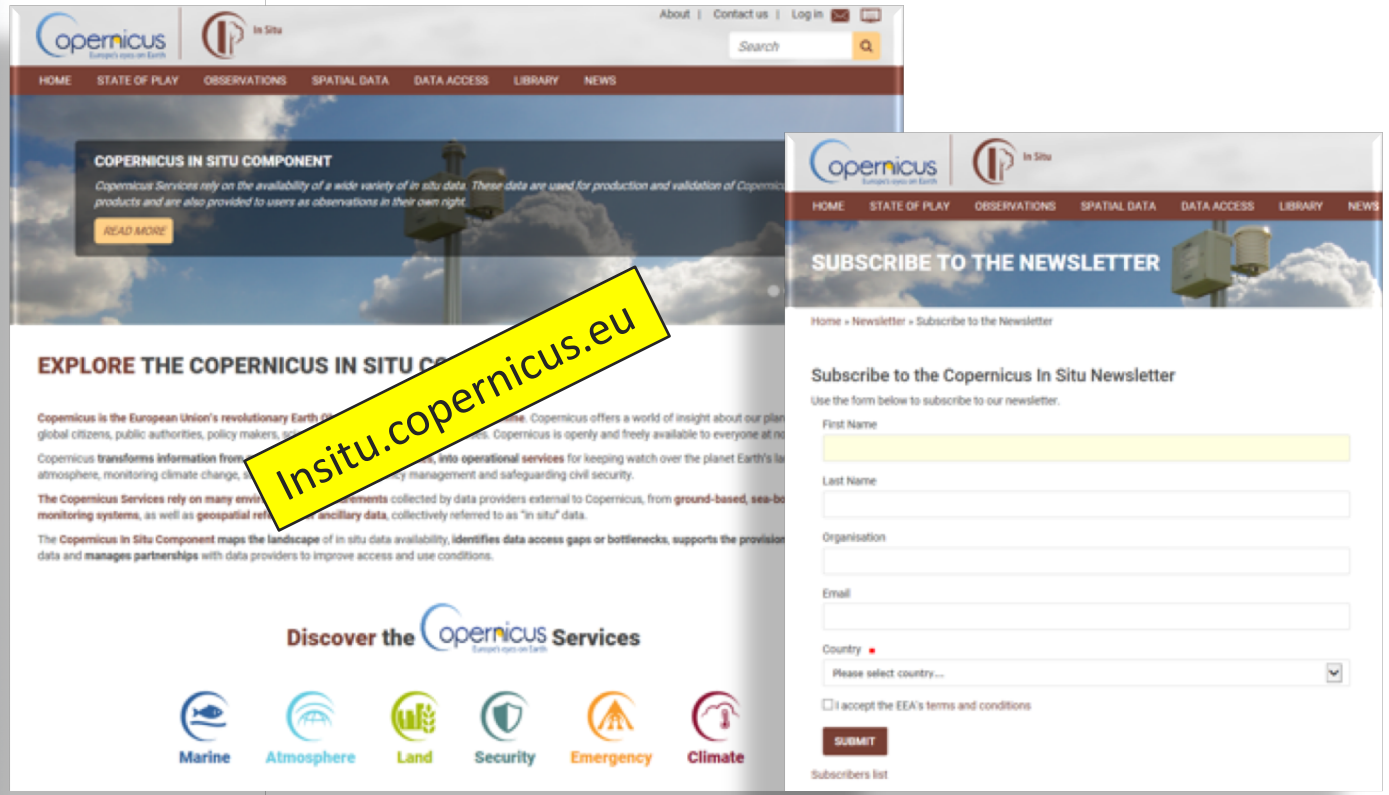

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Thank you for your attention

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