PITHIA-NRF **Sustainability: Ensuring Long-Term Impact and Growth**

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Key Values of PITHIA-NRF

- **A Unified European Research Infrastructure:** Integrates key national and regional facilities (EISCAT, LOFAR, Ionosondes, GNSS receivers, etc.) into a single accessible network.

- **Advanced Data, Models & Workflow Capabilities:** Combines satellite data (Cluster, Swarm, CHAMP) with cutting-edge models (IPIM-IRAP, SWIF, EUHFORIA) to enhance space weather research.

- **FAIR Data & Open Science:** Ensures Findable, Accessible, Interoperable, and Reusable data, driving innovation and standardization.

- **State-of-the-Art e-Science Center:** Enhances data discovery, interoperability, and high-impact research services.

- **Strategic European Collaboration:** Strengthens Europe's position in global space weather and upper atmosphere research by uniting top-tier R&D facilities.

- **Sustained Scientific & Technological Impact:** Supports long-term advances in upper atmosphere research through collaboration, training, and open access

Key Sustainability Strategies

- **Ensuring Long-Term Viability:** ensures PITHIA-NRF remains a cornerstone for upper atmosphere and space weather research.
- **Reliable Access to Data & Services:** Providing continuous access to high-quality data and computational resources.
- **Stronger Research & Innovation Network:** Strengthening collaborations across academia, industry, and policymakers for impactful outcomes.
- **Strategic Alignment with MoU:** The sustainability framework supports commitments outlined in the MoU, ensuring governance, accessibility, and growth.
- **Societal & Scientific Impact:** Enabling advances in space weather prediction, satellite operations, and critical infrastructure protection.

Memorandum of Understanding (MoU)

- Establishes a framework for sustaining the PITHIA-NRF community.
- Ensures long-term availability, accessibility, and impact of services.
- Key commitments:
  - Enhance e-Science Center services.
  - Strengthen collaboration, training, and knowledge-sharing.
  - Establish a stable governance structure.
  - Enable outreach and training programs.
  - Promote joint project proposals and open calls.
- Operates on a **best-effort basis** with in-kind contributions.

Benefits to Join the PITHIA-NRF Community

Visibility

- Greater visibility for data products.

- More use, accessibility of data/model/facilities

- Reinforce and highlight community potentialities

Collaboration network

- Collaboration with ionospheric experts

- New opportunities of cooperation, scientific papers, access to competitive calls

- Increasing exchange of data, expertise within/outside of PITHIA community

- Interactive research applications to foster cooperation with research institutes

- Cross-disciplinary access

- An increased user base

- Broader selection of use cases

- Training, events

- Preservation of intellectual property for posterity

- Innovative use, e.g., via chaining/fusing measurements and models in different ways.

Improved functionality

- Data and model comparison for specific dates

- Improve search results by ontology

- Browsing of multiple available data sets and models (with keyword supported search) for easy and fast selection of data sets and models and their execution

- Datasets that are offline will be archived into databases and then offered to the community.

- Users will be offered online and on request execution of models that are currently non accessible.

- Free and open access to space weather data, both interactively and programmatically

MoU – Rights and Expectations

- **Rights of the parties**:
  - Participation in PITHIA-NRF committee meetings.
  - Voting rights in decision-making.
  - Inclusion on the website and in publications.
  - Invitation rights for external experts.
  - Opportunity to join funding proposals.

- **Responsibilities of the parties**
  - Engage with users and promote sustainability.
  - Expand and enhance service offerings.
  - Foster partnerships and onboard new members.
  - Align efforts with EC-funded projects.
  - Participate in meetings, events, and governance activities.

MoU – Joint work plan

Objective 1: Sustaining PITHIA-NRF Services and Operations

- **e-Science Center:**
  - Maintain stable operations for data and model registration.
  - Provide system monitoring and user support.
  - Ensure compliance with quality standards.
- **Trans-National Access (TNA) Program:**
  - Facilitate access to PITHIA-NRF research facilities.
  - Organize biannual open calls for collaboration.
- **Innovation Platform:**
  - Support SMEs and industrial partners.
  - Foster new technology and instrument development.
- **Training & Knowledge Sharing:**
  - Provide training materials, webinars, and best practices.
  - Build capacity within the research community.

MoU – Joint work plan (con.)

Objective 2: Increasing Impact through Communication, Innovation, & Outreach

- **Communication & Outreach:**
  - Develop newsletters, reports, and case studies.
  - Organize workshops and webinars.
- **Engagement with SMEs and Industry:**
  - Promote PITHIA-NRF's innovation platform.
  - Explore commercialization opportunities.
- **Enhanced Visibility:**
  - Ensure presence in European and international forums.

MoU – Joint work plan (con.)

Objective 3: Establishing Robust Governance

- Multi-tiered governance structure ensuring transparency and inclusivity.
- Regular Committee meetings for decision-making and strategic planning.
- Compliance with European Commission guidelines.

MoU – Joint work plan (con.)

Objective 4: Securing Funding & Fostering Innovation Partnerships

- **Funding Proposals:**
  - Joint applications for European and national funding.
  - Co-funding opportunities with industry.
- **Innovation Partnerships:**
  - Strengthening collaborations with SMEs, industry, and research institutions.
  - Developing joint ventures for research challenges.
- **Resource Optimization:**
  - Cost-sharing initiatives to reduce operational expenses.
- **Funding for Transnational Access (TNA):**

MoU Duration and Next Steps

- **MoU Duration:** July 1, 2025 – June 30, 2029.
- **Status:** Under Institutional Review – has received positive feedback.
- **Target:** Collect signatures by the end of June 2025 to establish the PITHIA-NRF Committee

Future Funding Opportunities

- Next immediate step: Apply for new **EC funding calls.**
- Potential calls to consider:
  - **HORIZON-INFRA-2025-01-SERV-03:** Research infrastructure services advancing frontier knowledge.
  - **HORIZON-INFRA-2025-01-SERV-04:** Bottom-up research infrastructure services advancing frontier knowledge.
- Open discussion in the afternoon to determine the best fit.

HORIZON-INFRA-2025-01-SERV-03: Research infrastructure services advancing frontier knowledge.

Key Details:
- **Call:** Research Infrastructures 2025
- **Expected EU Contribution per Project:** Up to EUR 10 million
- **Total Indicative Budget:** EUR 20 million
- **Type of Action:** Research and Innovation Actions
- **Funding Rate:** 80% of eligible costs

Eligibility & Requirements:
- Must include at least one research infrastructure (ESFRI Landmark or ERIC)
- Access provision activities are mandatory
- Non-EU legal entities from select countries (e.g., USA, Canada, Switzerland) eligible for funding

Expected Outcomes:
- Improved, simplified, and efficient access to research infrastructures
- High-quality services enabling breakthrough research
- Better management and implementation of FAIR data principles
- Cross-disciplinary collaboration and training of new researchers

Scope:
- Provides trans-national and/or virtual access to research infrastructures
- Covers two scientific domains:
  - **Environment:** Atmospheric chemistry and dynamics
  - **Physical sciences and engineering:** Particle and nuclear physics
- Supports access provision, service improvement, and user training

HORIZON-INFRA-2025-01-SERV-04: Bottom-up research infrastructure services advancing frontier knowledge.

Key Details:
- **Call:** Research Infrastructures 2025
- **Expected EU Contribution per Project:** Up to EUR 5 million
- **Total Indicative Budget:** EUR 20 million
- **Type of Action:** Research and Innovation Actions
- **Funding Rate:** 80% of eligible costs

Eligibility & Requirements:
- Must include at least one research infrastructure (ESFRI Landmark or ERIC)
- Access provision activities are mandatory
- Select non-EU legal entities eligible for funding

Expected Outcomes:
- Expanded and more efficient access to research infrastructures
- Advanced research enabled by emerging research facilities
- Better harmonization and broader use of research infrastructure resources
- Training for new researchers and enhanced data management practices

Scope:
- Supports trans-national and/or virtual access to a wide range of infrastructures
- Focuses on scientific domains not covered by previous Horizon Europe calls
- Encourages interdisciplinary collaboration, user training, and open data standards
- Ensures outreach to researchers from Widening countries and fosters global collaborations

Conclusion and Call to Action

- PITHIA-NRF's sustainability relies on collective commitment.
- Engagement, collaboration, and funding are key to long-term success.
- Looking forward to continued partnerships and growth.

Thank you!