



ESPAS

near earth space data infrastructure for e-science

Sarah James, STFC
and the ESPAS
Consortium

Inside ESPAS

How ESPAS works to let you share and find data



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 283676.

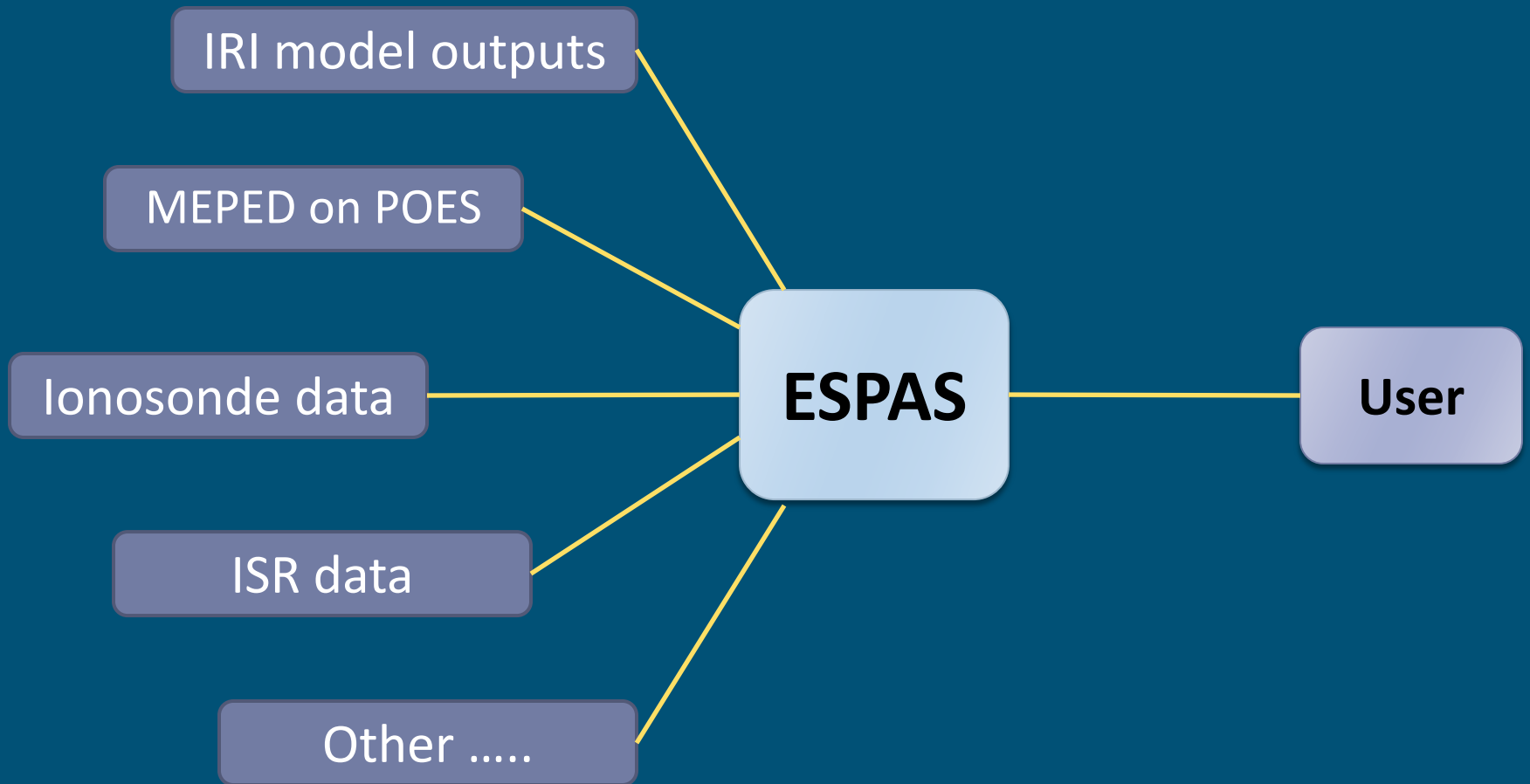


Contents

- ① What is ESPAS?
- ② Who is involved and how have we built ESPAS?
- ③ How does ESPAS work and what can it do for you?



ESPAS: Near Earth Space Data Infrastructure for e-Science





Getting data from ESPAS

<https://www.espas-fp7.eu/portal/>

The screenshot shows the ESPAS portal interface. At the top left is the ESPAS logo. To the right, it says "Hello, Sarah James | Sign Out" and "near earth space data infrastructure for e-science". Below this is a navigation bar with buttons for HOME, SEARCH, BROWSE, SUPPORT, and MY ACCOUNT. The main content area is titled "Current Selections" and displays search results for Athens Digisonde data from 2006-05-10 to 2006-06-21. There are icons for history, help, and other functions, along with "Back" and "Submit" buttons. Below the search results, there is a "Search by observation collections" section with a "Clear" button. The "Filter by" section shows a dropdown for "Region of Space" with "Ionosphere" selected. The "Observation Collection" section has a search input and a list of checked items: Athens Digisonde SAO files (autoscaled), DIAS daily f-plots of fmin,foF2 from Athens Digisonde, DIAS daily f-plots of M(3000)F2 from Athens Digisonde, IRI foF2 grids - CCIR F peak model, and IRI foF2 grids - URSI F peak model.



The ESPAS Team





The Data Providers

DH Consultancy	ACE
DLR	SWACI
DTU	Magnetometers
EISCAT	ISRs and Dynasonde
GFZ	CHAMP, GRACE and TerraSAR-X
IASB	Cluster
FMI	IMAGE magnetometers
INGV	GNSS, ionosondes and magnetometers
LDI	Ionosondes and IMAGE satellite

NOA	DIAS, IRIS, Alouette, DEMETER, IRI
SRC-PAS	COSMIC, DEMETER, Magion 3
TGO	Magnetometers
U. Birmingham	EDAM model
UCL	Fabry-Perot Interferometers
U. Leicester	SuperDARN
U. Oulu	MEPED
SGO	Pulsation magnetometers, ionosonde



How have we built ESPAS?

Science use cases

- ▶ ESPAS partners described a set of use cases
- ▶ Make use of varied data sets and functionalities
- ▶ Analysed to give system requirements

De-centralised system

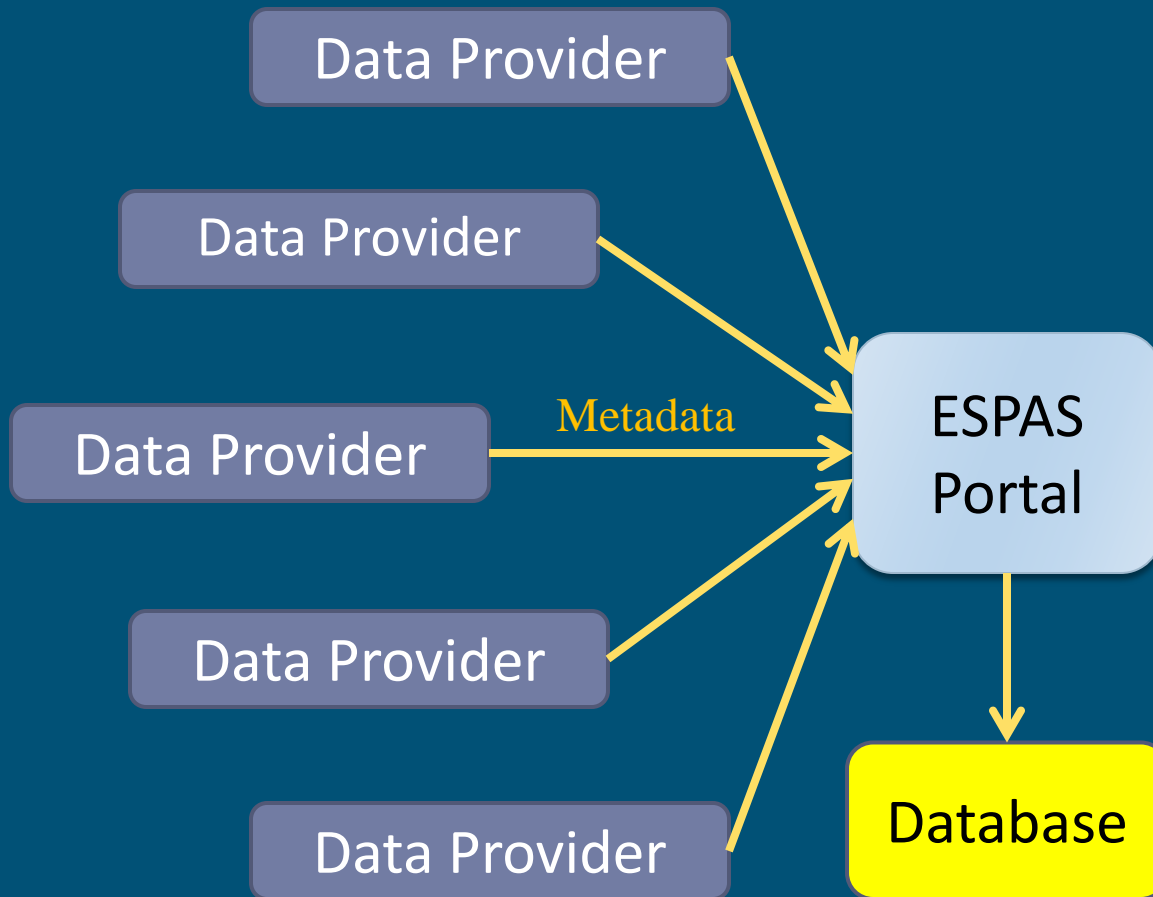
- ▶ Data stays with data providers
- ▶ Central system
 - ▶ Harvests metadata
 - ▶ Provides a data portal

Metadata for interoperability

- ▶ Metadata model
- ▶ Ontology

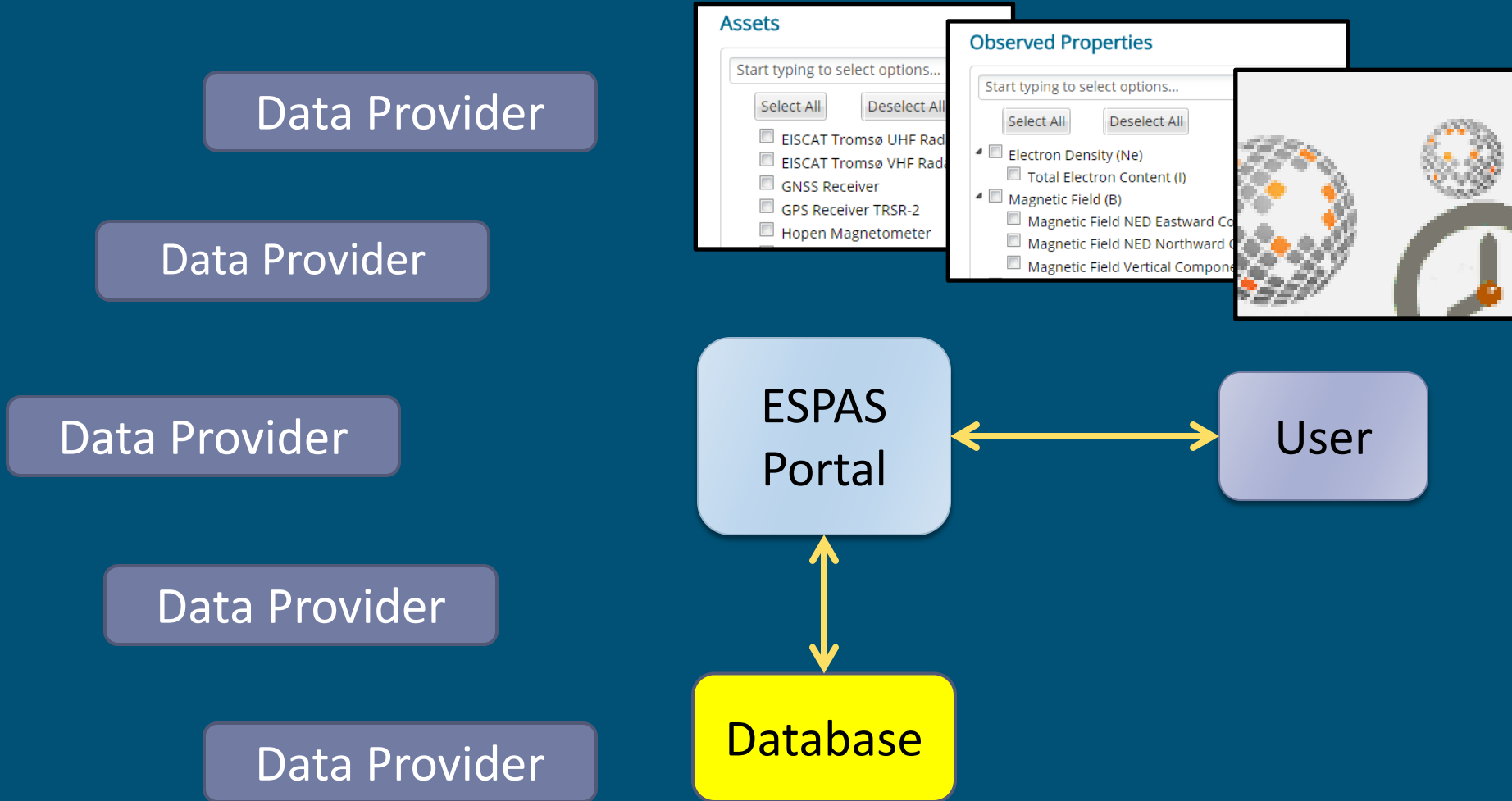


ESPAS Central System Stores Metadata



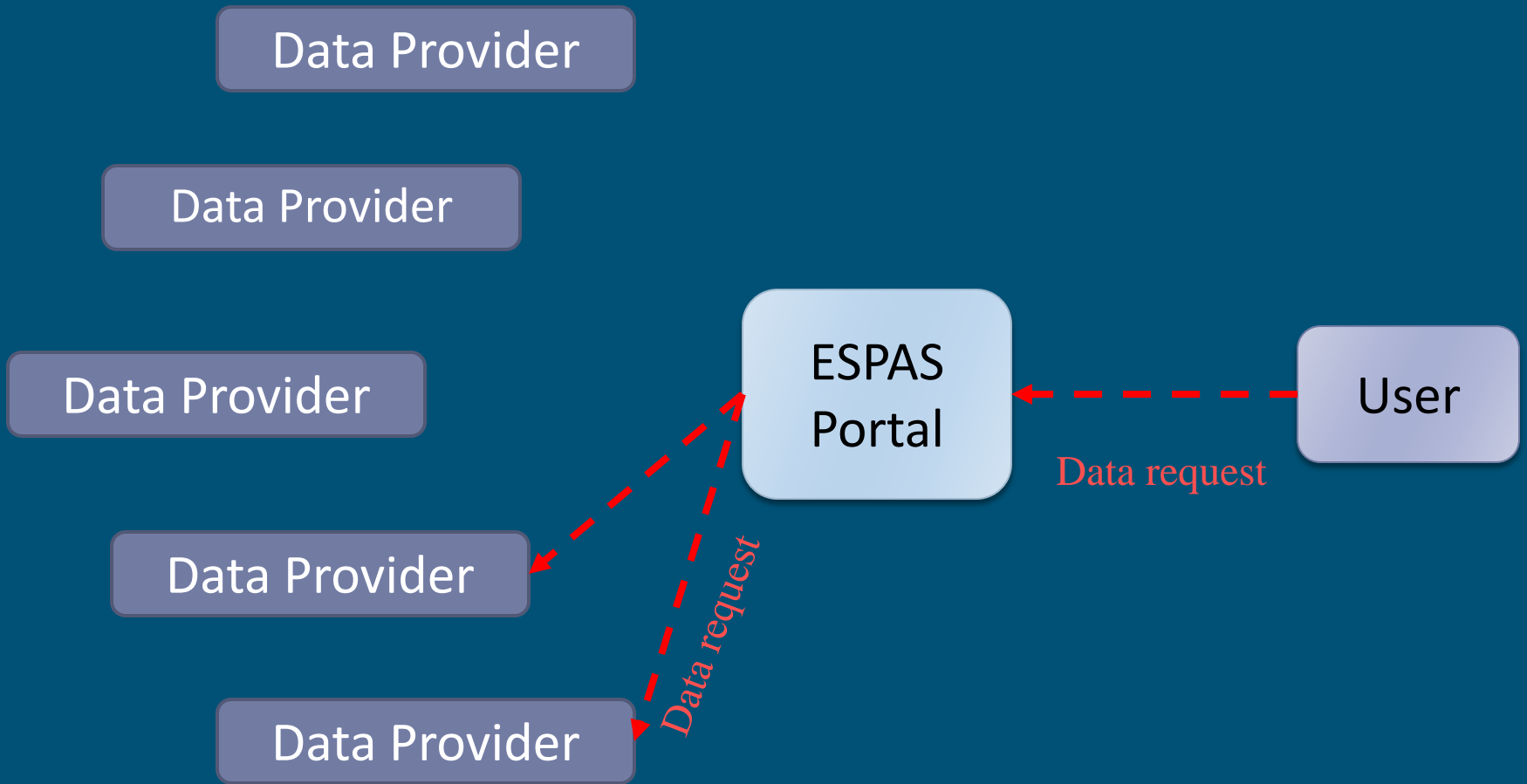


An ESPAS Data Search



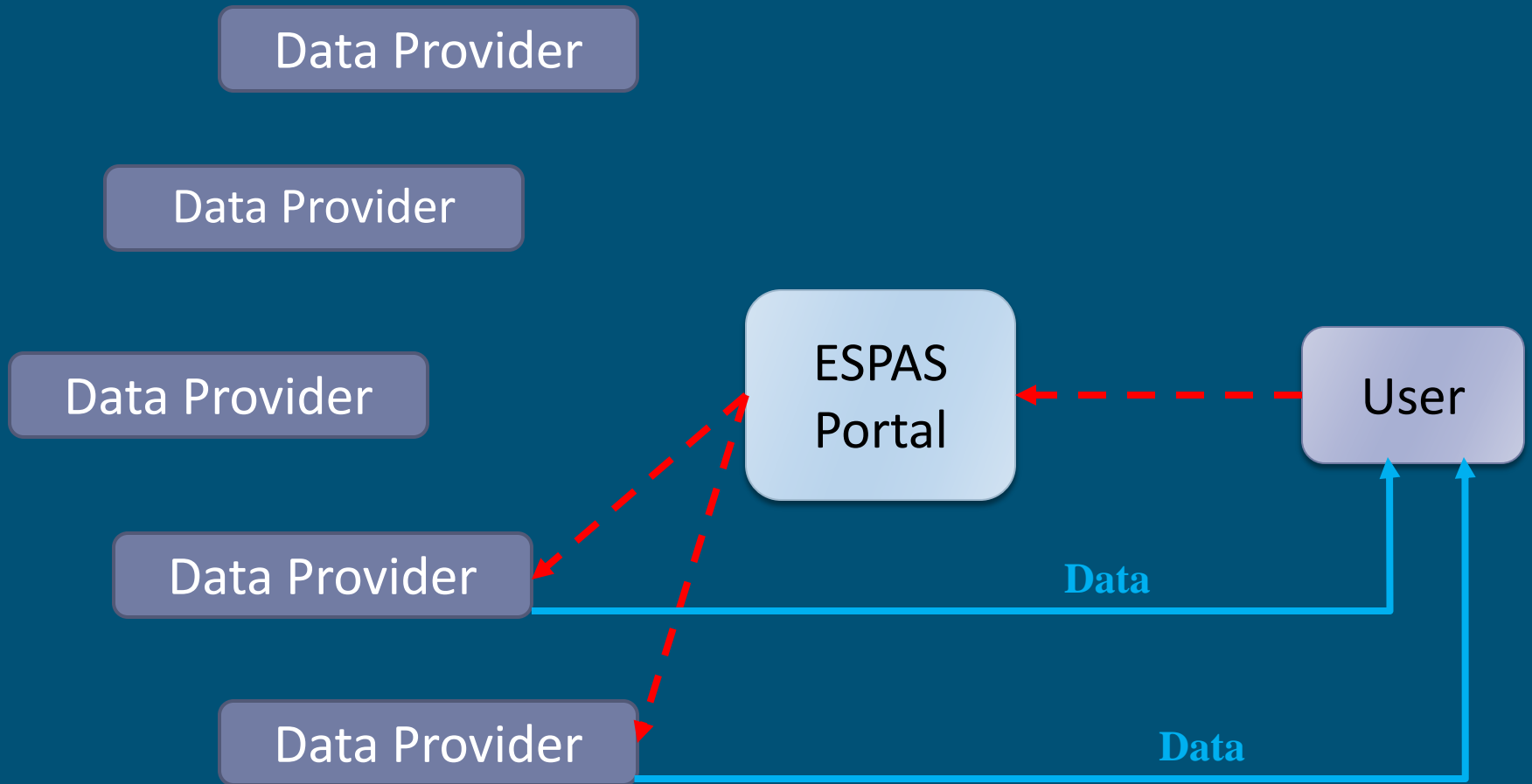


An ESPAS Data Request



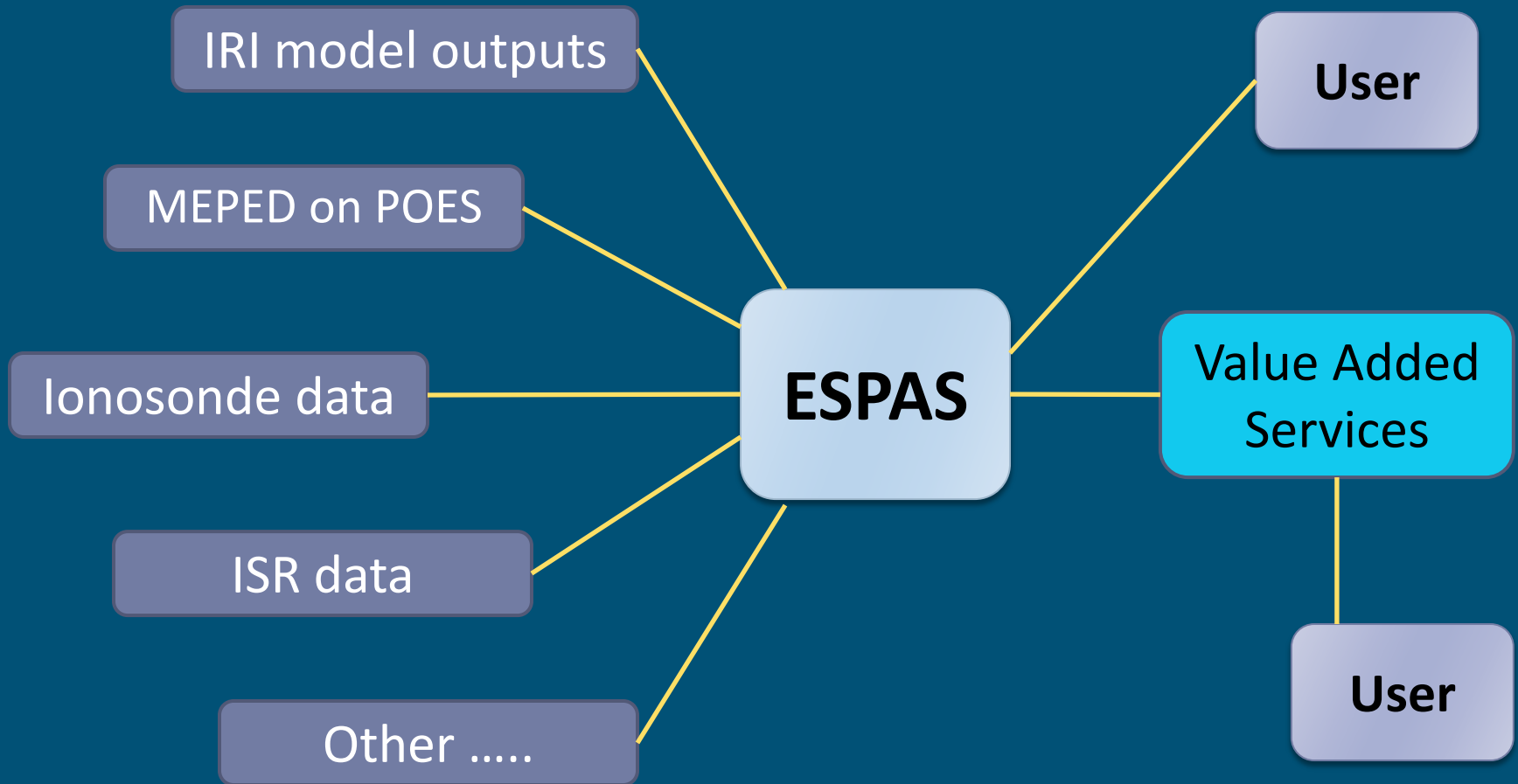


An ESPAS Data Download





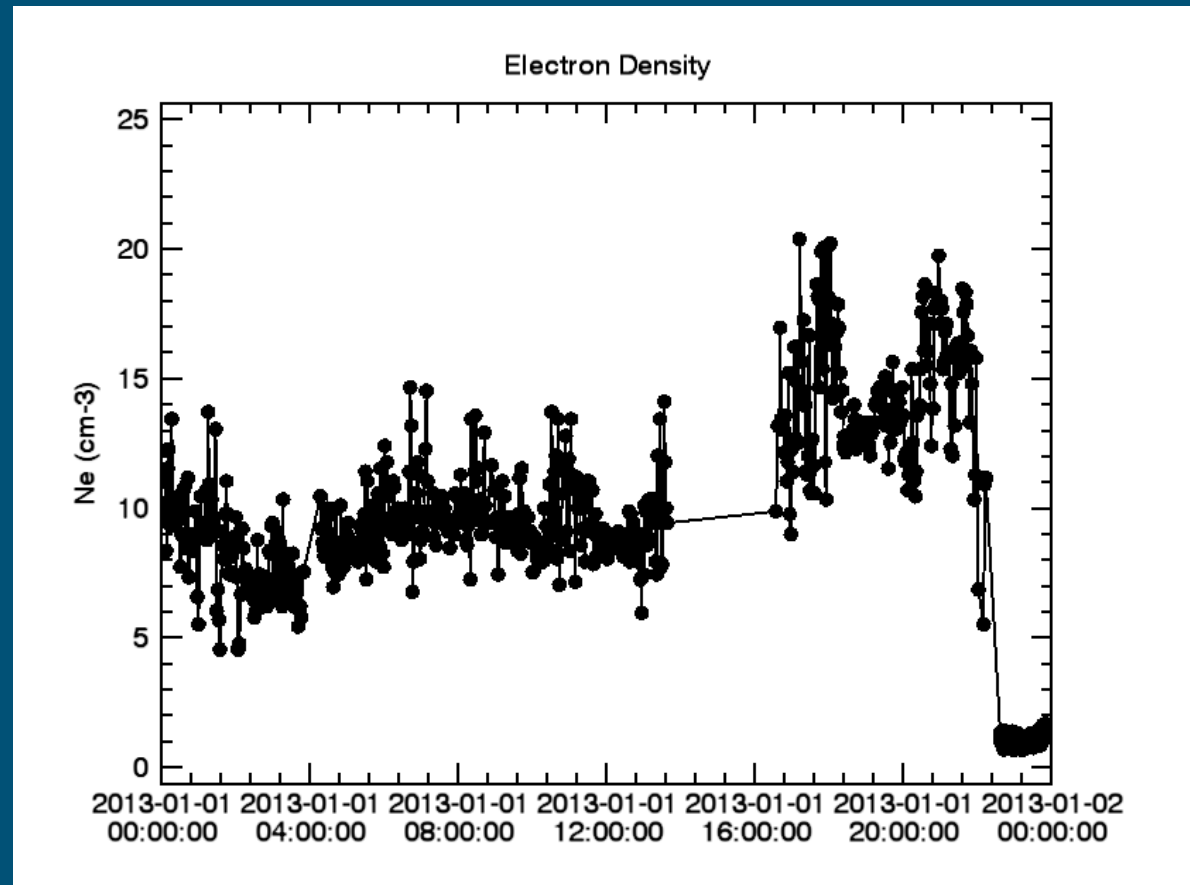
Value Added Services





Extract and Plot Values

	A	B	C
1	Date	Electron Density	
2		Ne (cm ⁻³)	
3	2013-01-01	9.65E+00	
4	2013-01-01	9.87E+00	
5	2013-01-01	9.65E+00	
6	2013-01-01	1.10E+01	
7	2013-01-01	8.35E+00	
8	2013-01-01	1.15E+01	
9	2013-01-01	1.23E+01	
10	2013-01-01	9.53E+00	
11	2013-01-01	9.31E+00	
12	2013-01-01	1.24E+01	





Training School



ESPAS
near-earth space data infrastructure for e-science

TRAINING SCHOOL

SPACE RESEARCH CENTRE of the POLISH ACADEMY OF SCIENCES, WARSAW,

october 19-23, 2015





Conclusions

- ⦿ Homogenised access to near-Earth Space Data from one portal
 - ▶ Discover what is available by time, by location, by observed properties, by instrument type
- ⦿ Share near-Earth Space Data through ESPAS
- ⦿ ESPAS is under development – we would like your feedback

<http://www.espas-fp7.eu>



ESPAS

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Thank you

Sarah James and the ESPAS team