Intelligent Archival Technologies

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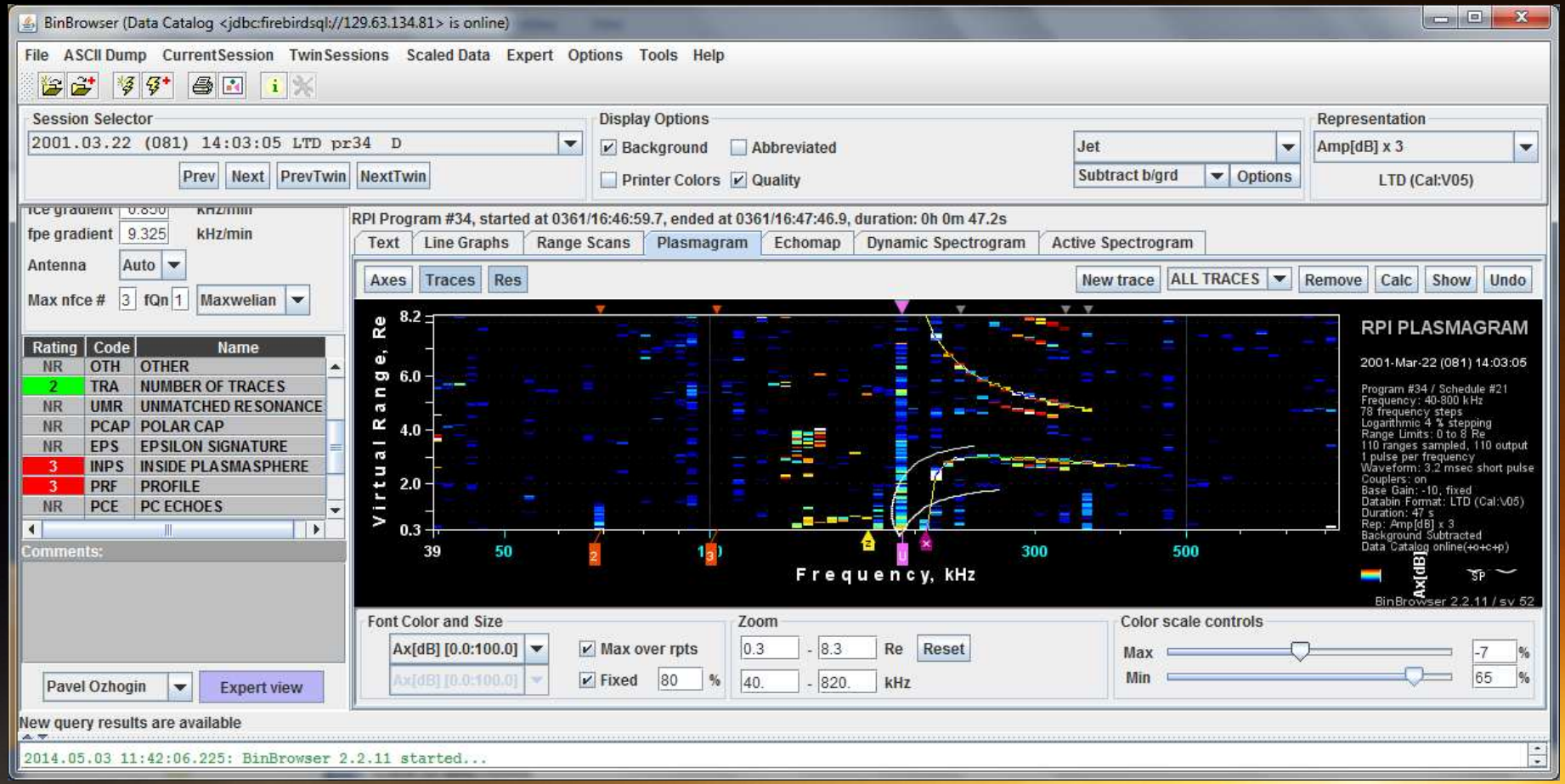
Background

- Intelligent Systems (IS) = A branch of computational science and information technology research that aims to replicate various aspects of human intelligence
- Intelligent Archives = data repositories employing IS
  - Many tried but failed…
- Big Data = data repositories resisting conventional data search, retrieval, and analysis due to their size and complexity
  - Are we there yet?

Precursors Worth Further Attention

- Ionogram-derived descriptions of events
  - Auroral E
  - Sporadic E
  - Spread F
  - Deviation from predicted value
- Radio Plasma Imager's "Expert Rating"
  - Manual and automatic interpretation
  - Several event categories
  - Confidence degree



BinBrowser Expert Rating Capability

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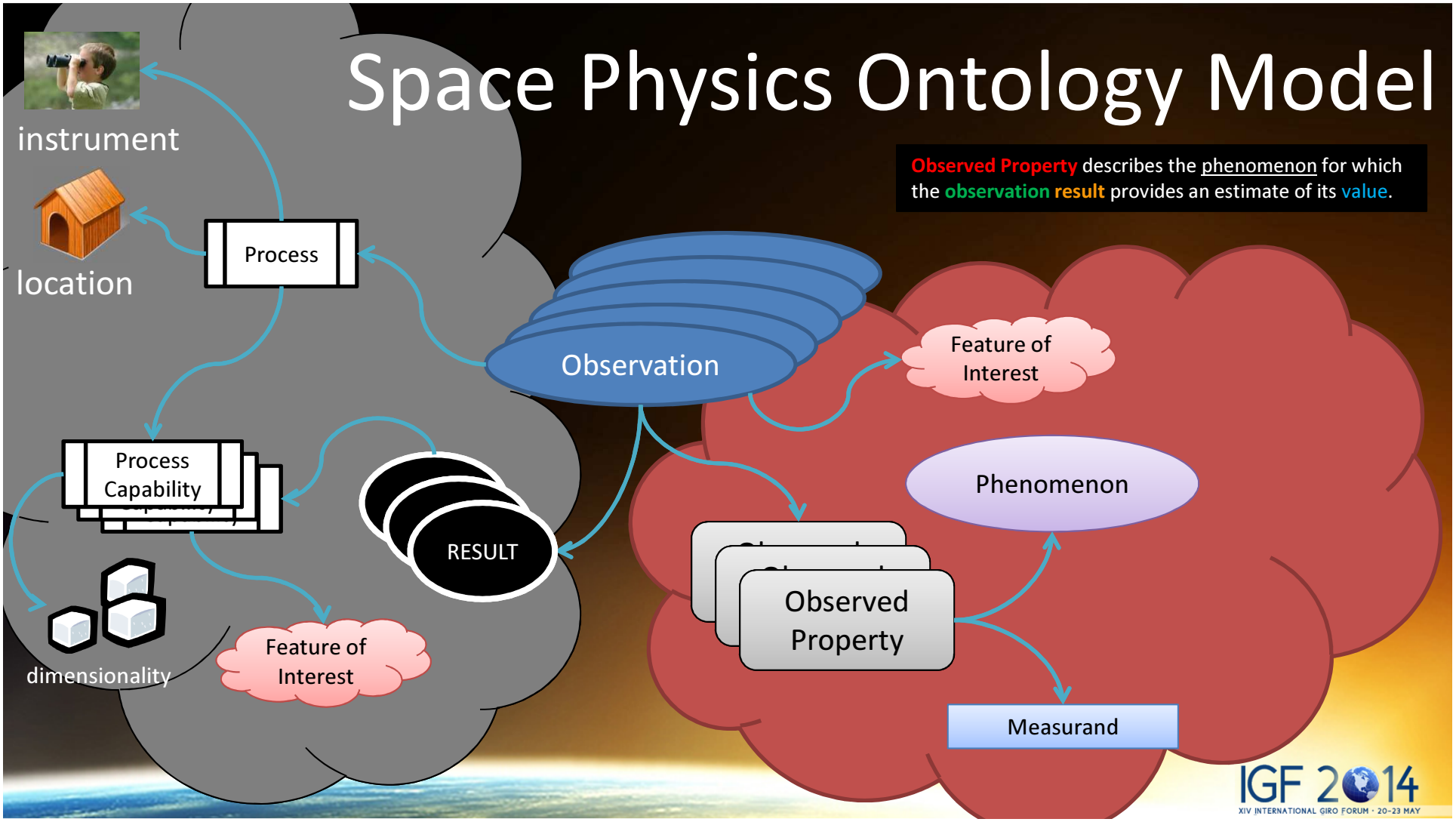
Annotation Service

- Place labels on detected events
  - Event vs Phenomenon
- Labels have to be searchable
- Classification system for the events
  - “Dictionary of keywords”
  - Domain ontology

Space Physics Domain Ontology

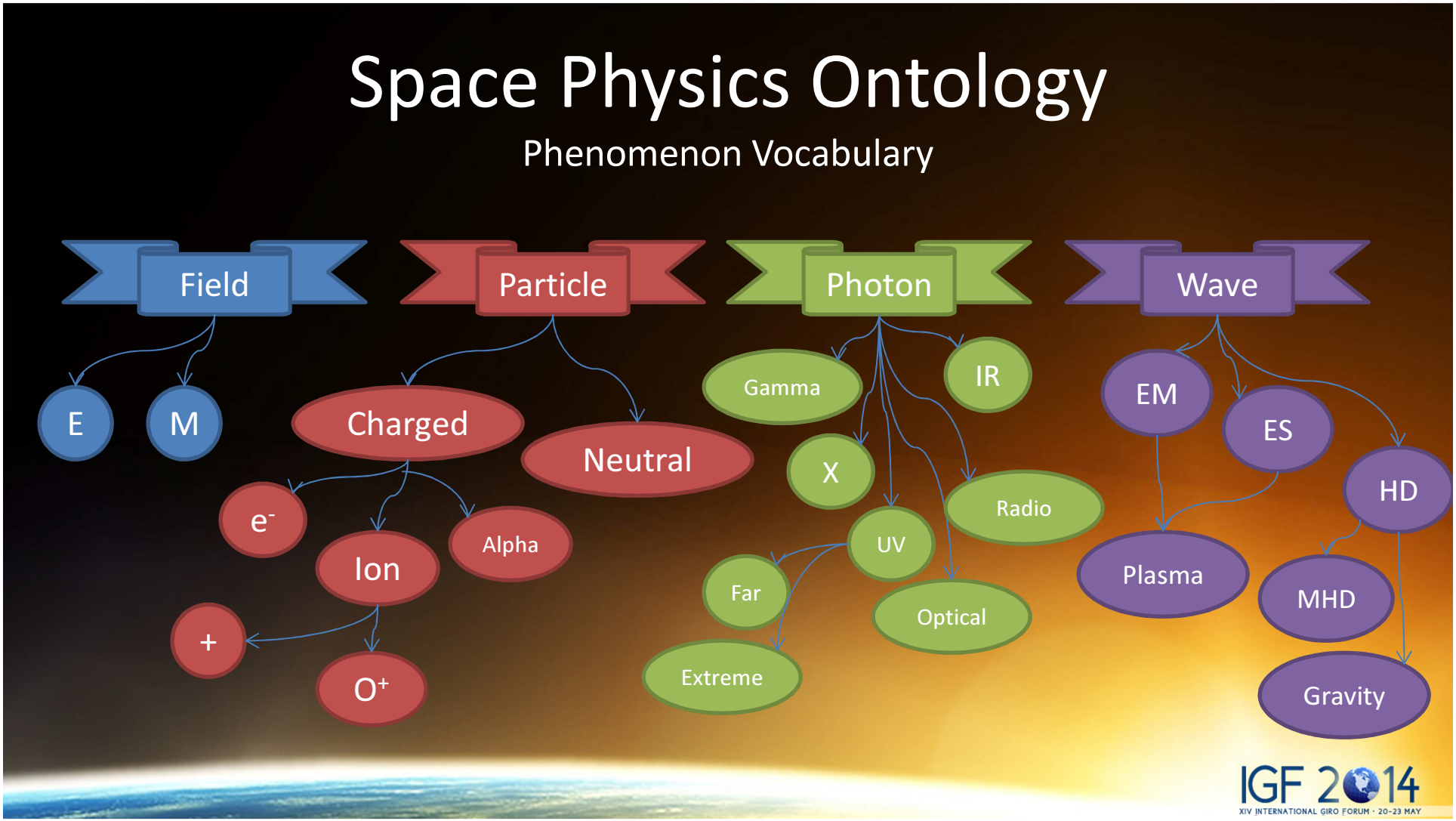
- Previous work is practically non-existing…
- Work at UMLCAR started in 2010
  - VWO
  - ESPAS
- ISO O&M is the founding data model
- Efforts to harmonize with SPASE underway

Space Physics Ontology Model



Space Physics Ontology

Phenomenon Vocabulary



Dalu
감사합니다
Gracias
Danke
Ευχαριστίες
THANK YOU
Obrigado
Köszönöm
Grazie
Спасибо
Dank
Tack
谢谢
Merci
ありがとう
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