Upgrading Radiopurity.org: A Community Material Assay Database

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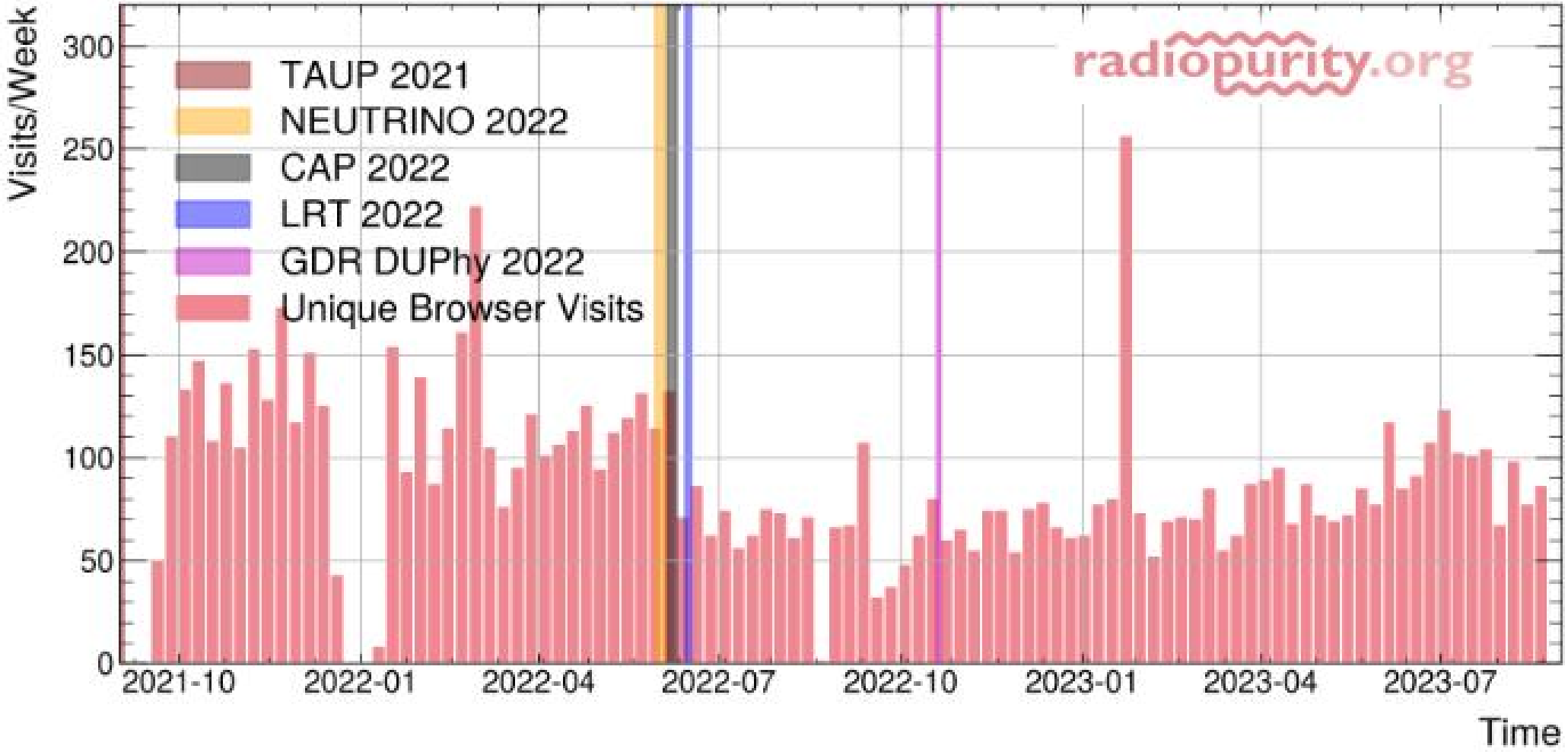
TAUP'23/RadioPurity.org

radiopurity.org

A community material assay database

- A system for record-keeping
- A place for sharing assay results

Every entry in radiopurity.org is an investment in disseminating information and building cross-calibration capabilities


Visits/Week
300
250
200
150
100
50
0
TAUP 2021
NEUTRINO 2022
CAP 2022
LRT 2022
GDR DUPhy 2022
Unique Browser Visits
radiopurity.org
2021-10
2022-01
2022-04
2022-07
2022-10
2023-01
2023-04
2023-07
Time

Current RadioPurity Framework (I)

DATA FORMAT

Material Assay Data Format (MADF)
Standardized, but flexible, json format

INTERFACE

Database Assistant
Open source format for storing, displaying and manipulating MADFs

Public instance maintained by SNOLAB
https://www.radiopurity.org/
Can share results easily with community when ready

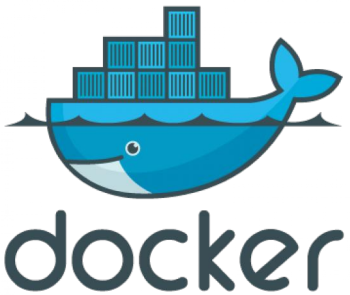
Current RadioPurity Framework (II)

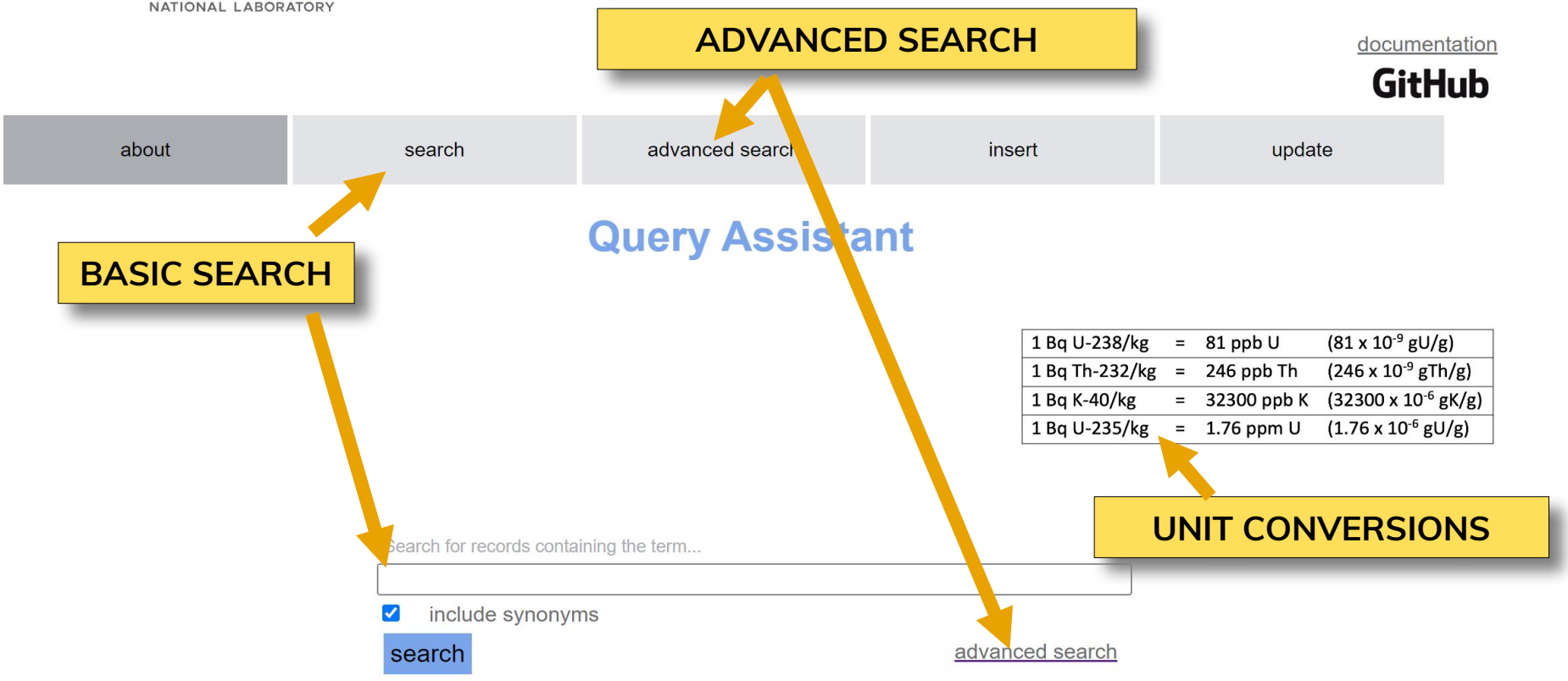
BACKEND

MongoDB Database and python-based toolkit
Up-to-date standardized codebase
Record versioning, tracked by document ID

DEPLOYMENT

Containerized Deployment
Database, website → can be spun up at other sites for mirroring/distributed capabilities




ADVANCED SEARCH
documentation
GitHub
about
search
advanced search
insert
update
Query Assistant
BASIC SEARCH
1 Bq U-238/kg = 81 ppb U (81 x 10-9 gU/g)
1 Bq Th-232/kg = 246 ppb Th (246 x 10-9 gTh/g)
1 Bq K-40/kg = 32300 ppb K (32300 x 10-6 gK/g)
1 Bq U-235/kg = 1.76 ppm U (1.76 x 10-6 gU/g)
UNIT CONVERSIONS
Search for records containing the term...
include synonyms
search
advanced search

Summary

- RadioPurity continues to serve the community as a place to host valuable cross-project information
- Current focus continues to be robustness of system, feature support, and encouraging addition of assay data for the community
- Is data missing? Do you have feedback? Need help? Contact us! radiopurity@snolab.ca

ACKNOWLEDGEMENTS

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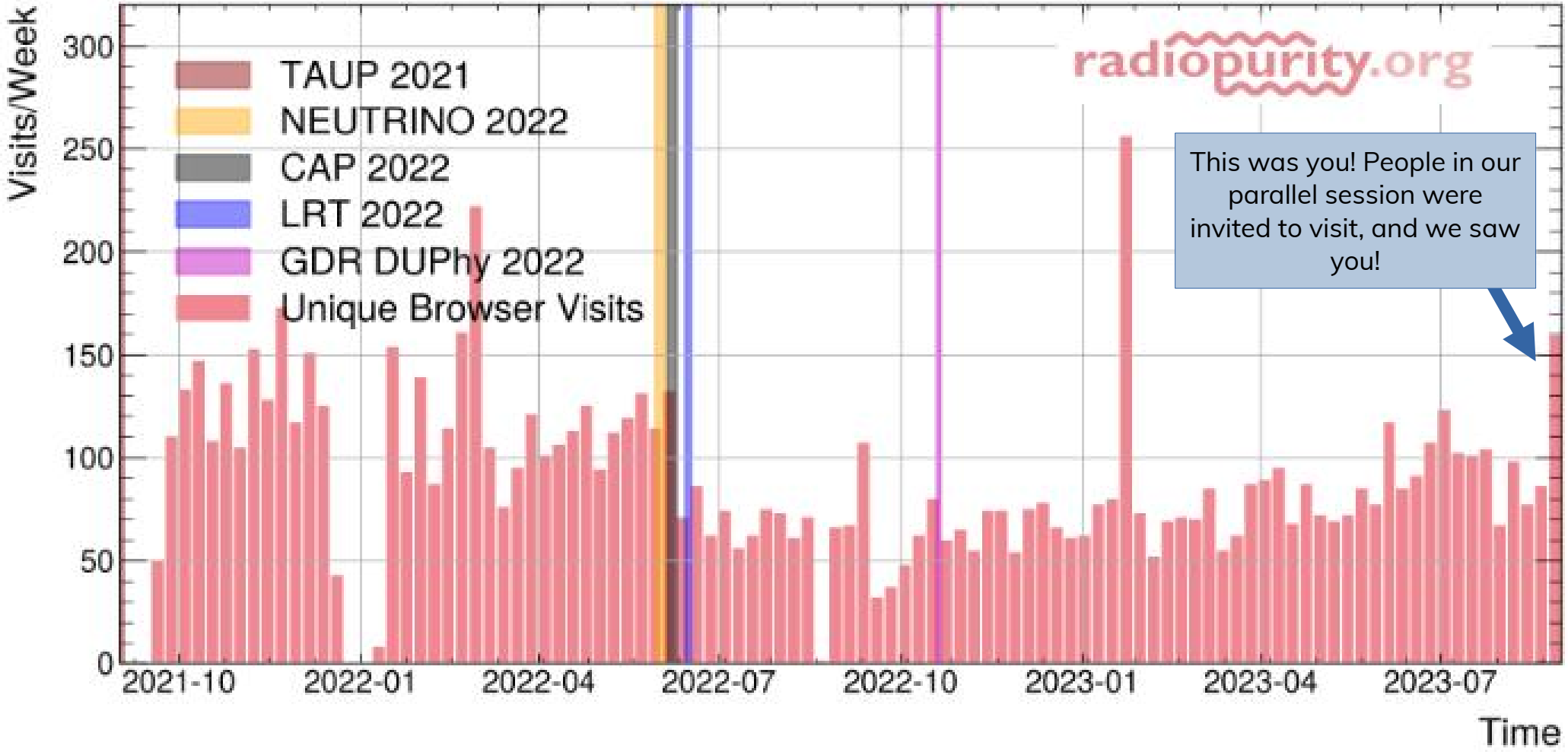
APPENDIX

Hey! The plot on page 3 isn't what I remember from the talk

- Good eyes! It's not the same graphic.
  - We did an exercise during the session where people were invited to visit the site.
  - We expected 20-40 visits in that time window, based on the room population.
- We discovered we were being too restrictive in how we count "visits". Our old method missed many of you who were clearly visiting using your devices.
  - We fixed the visit countign program and updated the plots.
- See the next slide to see your visits from the session!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radiopurity.org
This was you! People in our parallel session were invited to visit, and we saw you!
2021-10
2022-01
2022-04
2022-07
2022-10
2023-01
2023-04
2023-07
Time

Discussion during and after the parallel session talk

- Are niche or specific assay results appropriate for uploading to RadioPurity.org?
  - Yes! No result is too small. People in our community want to know what you learn about materials or parts of devices. Sharing is good.
- Comment: null results are important to report.
  - Agreed! If you fail to measure something (e.g., within the limits of your instrumentation), it's good to report that. This will be useful to others.
- Has the interface for uploading information changed in the last few years?
  - Yes. The web interface didn't exist several years ago, and helps you know how to enter/format data. There are also tools for taking data from spreadsheets into the databse. See: https://github.com/pnnl/Radiopurity-database-assistant