Integrating tephrochronology with archaeology, the humanities, and palaeoenvironmental and palaeoclimatic records (dataARC)
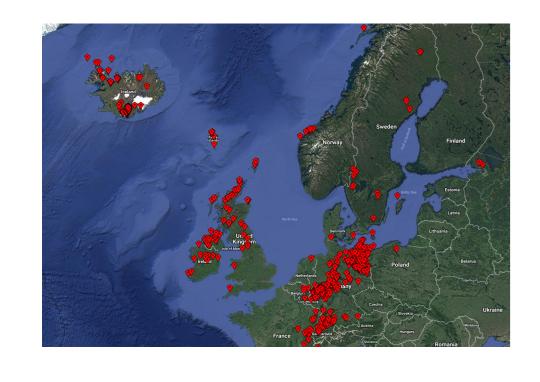
**INTAV inter-congress meeting 2018
Brasov, Romania**

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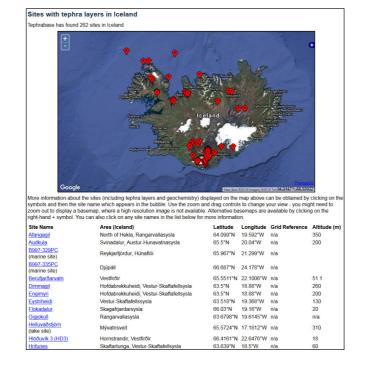
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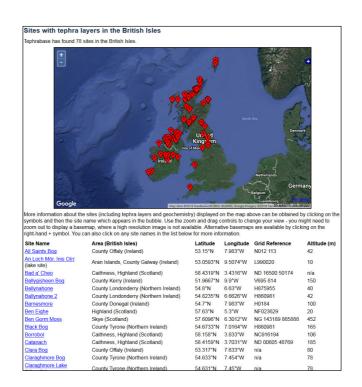
For over 20 years volcanological and tephrochronological databases (such as *Tephrabase*) have existed, and they are invaluable tools for researchers around the world. Recent years have seen the development of new systems, which add greatly to making tephra data available, comparable and globally accessible. One of the next stages is to link these tephra databases into related data repositories. *dataARC* is a National Science Foundation-funded project which is creating data infrastructure and digital tools to allow scientists and the public to easily access, link and understand the information that is essential to interdisciplinary research. This ongoing project has brought together a wide range of academic researchers together with informatics experts. The research focus is the North Atlantic region from Scandinavia, across northern British Isles, Faroes Islands, Iceland and Greenland and builds on the work of the North Atlantic Biocultural Organisation (NABO).
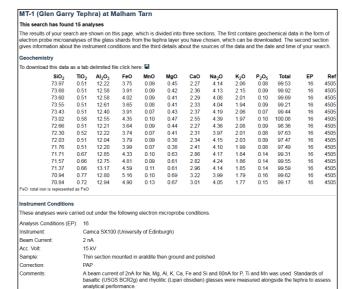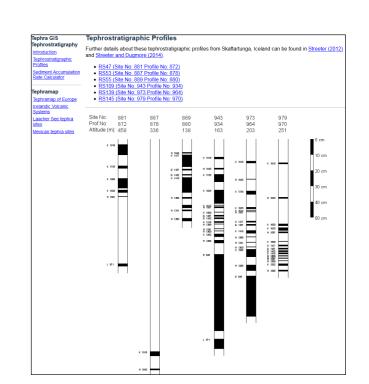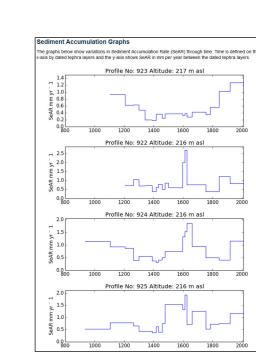
www.tephrabase.org

The last 23 years, has seen Tephrabase grow to now include over 800 European and 16 Mexican sites and more are being added. As well as information on tephra layers, including geochemical data, Tephrabase also can also create stratigraphic columns and calculate sediment accumulation rates for selected Icelandic sites. This helps with studies of environmental change since Iceland was settled in the 9th century AD.

dataARC will link interdisciplinary data from a wide range of archaeological, environmental, historical and literary sources to help us answer fundamental questions about human-environment interactions
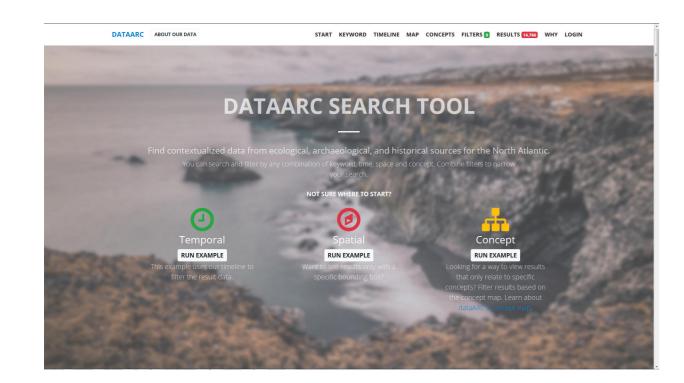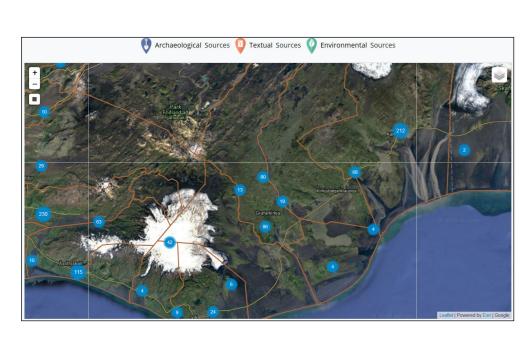
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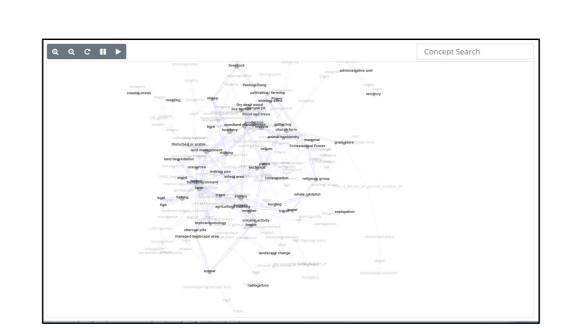Rachel.Opitz@glasgow.ac.uk

www.data-arc.org

dataARC's central aim is to foster interdisciplinary and collaborative research on long-term human ecodynamics of the North Atlantic through the development of digital resources and tools. The group's research ranges across disciplines from environmental geography, to tephrochronology to palaeoclimate modelling, to zooarchaeology, and to saga studies. This NSF-funded project comes out of the long history of interdisciplinary research and cooperation of the NABO research collective (www.nabohome.org).
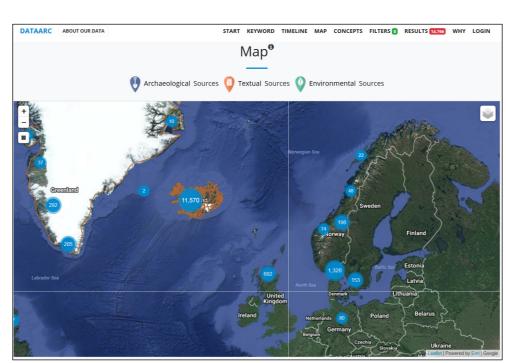
One of the priorities of this project as to define a shared data model and conceptual framework which would build links across the disciplines. The Digital Archaeological Record (tDAR) are leading the technical developments of dataARC and hosting and preserving datasets (Adam Brin). The Center for Advanced Spatial Technologies at the University of Arkansas are developing the user interface. Rachel Optiz (PI) at the University of Glasgow is leading the conceptual and semantic developments and linkages between our varied datasets. Data from the Strategic Environmental Archaeology Database (SEAD), based in Umeå Sweden, is linked into the dataARC tools. The University of St Andrews is leading the development of palaeoclimate proxies (Richard Streeter) and developing outreach tools to the general public (Tom Dawson). Zooarchaeological data is being integrated into dataARC with teams from the University of the Highlands (Ingrid Mainland) and Islands and City University New York (Tom McGovern). The NSIDC hosts major partners of dataARC, including ELOKA, and acts as the home for dataARC's Colleen Strawhacker and Peter Pulsifer.
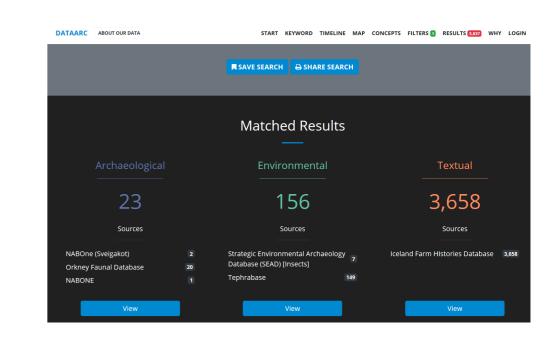
Icelandic tephrochronology provides unparalleled chronological control for studies of the last 1200 years of human-environment interactions since settlement and Tephrabase is integrated into dataARC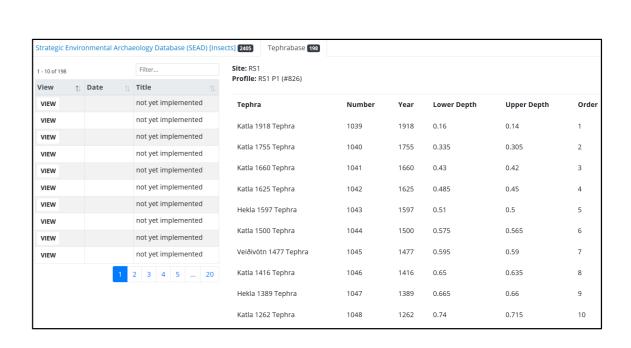 to allow this invaluable data to be utilised.