

**Project Name:** Mapping the Iron Age Metalworking Site of As-Safah (Oman)

**PIs:** Michael J. Harrower, Johns Hopkins University; Frances Wiig, University of New South Wales; Ioana A. Dumitru, Johns Hopkins University

**Summary of Work Undertaken with SPARC:** The Archaeological Water Histories of Oman (ArWHO) Project received a grant from SPARC that funded a team of two remote sensing professionals (Katie Simon and Jennie Sturm) who conducted geophysical survey at the site of ‘Uqdat al-Bakrah (Safah), Oman. The team surveyed an area of 2.86 ha with magnetometry, 1.34 ha with GPR using a 400MHz antenna, and 0.16 ha with GPR using a 700MHz antenna.

**Summary of Results:**

Terrestrial remote sensing data revealed hundreds of sub-surface pits/furnaces as well as an ancient water channel. Test excavation were conducted to verify and gather further information and findings were used for comparative analysis of satellite radar data (Wiig et al. 2018).

**Publications Completed:**

2019 Sivitskis, A.J., J.W. Lehner, M.J. Harrower, I.A. Dumitru, P.E. Paulsen, S. Nathan, D.R. Viète, S. Al-Jabri, B. Helwing, F. Wiig, D. Moraetis, and B. Pracejus. Detecting and Mapping Slag Heaps at Ancient Copper Production Sites in Oman. *Remote Sensing* 11(3014).

<https://doi.org/10.3390/rs11243014>

2018 Wiig, F., M.J. Harrower, A.P. Braun, S. Nathan, J.W. Lehner, K.M. Simon, J.O. Sturm, J. Trinder, I.A. Dumitru, S. Hensely, T. Clark – Mapping a Subsurface Water Channel with X-band and C-band Synthetic Aperture Radar at the Iron Age Archaeological Site of ‘Uqdat al-Bakrah (Safah), Oman. *Geosciences* 8(9): 334. <https://doi.org/10.3390/geosciences8090334>

**Presentations Completed:**

2019 M.J. Harrower – Advanced Technologies for Conservation of Cultural Heritage in Oman. Paper presented at UNESCO World Heritage Centre and ICOMOS International Workshop of the Practical Application of the Salalah Guidelines of the Management of Public Archaeological Sites, Nizwa, Oman Sept. 16-19, 2019.

2019 Harrower, M.J., J.W. Lehner, S. Nathan, I.A. Dumitru, F. Wiig, K. Simon, D.R. Viète, K.J.T. Livi, L.B. Renaux, M.R. Tritsch – Metallurgy in the Desert: New Investigations at the Iron Age site of ‘Uqdat al-Bakrah (Safah), Oman. Paper presented at the 53rd Seminar for Arabian Studies, Leiden, The Netherlands, Jul 11-13, 2019.

2019 Harrower, M.J., S. Nathan, I.A. Dumitru, J.W. Lehner, F. Wiig, A.J. Sivitskis, R. Crassard - “From the Paleolithic to the Islamic Era: The Archaeological Water Histories of Oman (ArWHO) Project Survey (2011–2019)” American Schools of Oriental Research (ASOR) Meetings, San Diego, CA, Nov. 20-23, 2019.

2019 Wiig, F., M.J. Harrower, S. Nathan, I. Dumitru, J. Lehner, J. Trinder, A. Braun, S. Hensley – Mapping Subsurface Archaeological and Paleoenvironmental Features at the Iron Age Site of

‘Uqdat al-Bakrah (Safah), Oman. TerraSAR-X/Tandem-X Science Team Meeting, DLR (German Aerospace Centre) Oberpfaffenhofen, Germany. October 21-24, 2019.

2018 Harrower, M.J. Ancient Dhofar and its Neighbors: Landscapes, Water, and Inter-Regional Trade. Paper presented at the Library of Congress / Sultan Qaboos Cultural Center Event “Ancient Oman: Archaeological Digs and Historical Discoveries in the Sultanate of Oman”. April 24, 2018.

2018 Dumitru, I.A., J. Lehner, M.J. Harrower – Modelling the Connectivity of Socioeconomic Networks of Copper Production in Ancient Northern Oman. Paper presented at the 83th Society for American Archaeology (SAA) Meetings, Washington, DC, April 11-15, 2018.

2018 Dumitru, I.A. and M.J. Harrower – “Modelling Networks of Obsidian Production in Northern Ethiopia and of Copper Production in Northern Oman: A Comparative Study,” The Connected Past 2018, Oxford, UK, December 6-7, 2018.

**Presentations and Publications in Press / Planned:**

(in prep) M.J. Harrower, S. Nathan, I.A. Dumitru, F. Wiig, A.J. Sivitskis, H. David-Cuny, J.W. Lehner, J.L. Swerida, J.C. Mazzariello, R. Crassard, Suleiman Al-Jabri, A. Buffington, S.P. Taylor. Water History of Wilayah Yanqul: The Archaeological Water Histories of Oman (ArWHO) Project Survey (2011-2016). *Journal of Oman Studies*