SORSE

Research Software and the Modelling of COVID-19 in the UK

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Software

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The onset of the COVID-19 pandemic in early 2020 created an urgent need for epidemiological and infectious disease modelling. In the UK, a surge of local and national initiatives quickly emerged to support existing research groups with the increased demands of this crisis, and Research Software Engineers (RSEs) played a pivotal role in these responses. Many questions abound. For new collaborations, what were the difficulties and solutions in quickly setting up networks across varied institutions and between collaborators with disparate expertise? For existing institutions, how were established codes and frameworks adapted to tackle the dynamic situation? How did researchers perceive RSEs and the impact of their involvement? Which general, non-domain-specific software skills and practices were required for success? In situations where research software is extended beyond its initial purpose for broader consumption, how do RSEs in conjunction with researchers help promote trust in the outputs? How will software created during this crisis be maintained to ensure sustainability and preparedness for future use?

This panel discussion will explore these questions and more by querying the journeys of a selection of RSEs and researchers involved in UK COVID-19 modelling efforts. The panellists will be drawn from three collaborations, each characterising a different approach: the Scottish COVID-19 Response Consortium (SCRC), the MRC Centre for Global Infectious Disease Analysis which houses Research Software for Infectious Disease Epidemiology (RESIDE), and MetaWards. Overall, the discussion will seek to harness the interest surrounding this topic to engage a large audience in the ongoing discourse about software's role in research, focussing on how software engineering and RSEs can foster political, academic, and societal trust in policy-relevant research.

Panelists

- Alys Brett is Head of the Software Development Group at UKAEA and has coordinated the national RSE involvement in SCRC (Scottish COVID-19 Response Consortium), which is part of the broader Royal Society RAMP call to action. She has first-hand experience of quickly establishing projects that brought together RSEs and modellers from different backgrounds.
- Dr. Richard Reeve is co-director of the Boyd Orr Centre for Population and Ecosystem Health at the University of Glasgow and leads the modelling work of SCRC as a joint founder. As an academic researcher who also advocates within the RSE community, he offers a bridging perspective between RSEs and researchers and why their relationship is so important for projects like this.
- Dr. Christopher Woods is EPSRC RSE Fellow at the University of Bristol's Advanced Computing Research Centre and got involved in the MetaWards project near the beginning of the pandemic. Chris took a unique and well-documented approach of adopting the existing code and translating it into Python, which proved to be an effective way of building trust in the original software.
- Dr. Lilith Whittles is a Postdoctoral Researcher at the Department of Infectious

Disease Epidemiology, Imperial College. Currently, she is applying her expertise in the mathematical modelling of disease transmission to the real-time modelling of the COVID-19 epidemic, working closely with RSEs to achieve this goal.

- Dr. Rich Fitzjohn runs the RESIDE group (Research Software for Infectious Disease Epidemiology) at Imperial College. He collaborated with Dr. Whittles directly to support the development of her model. His group has worked with epidemiologists in the MRC Centre for Global Infectious Disease Analysis for the last 5 years, including the response to previous Ebola outbreaks.