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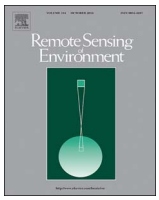

Preface

Special issue on earth observation of essential climate variables

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The aim of this Special Issue is to demonstrate how Essential Climate Variables (ECVs) can be generated from Earth Observation (EO) data, and how to use those variables in climate modelling and other climate-related applications. Papers were solicited from both those involved in running the Climate Change Initiative (CCI, http://cci.esa.int/) projects, which have generated 13 ECVs, and the wider community of CCI dataset users.

The paper of Plummer et al. presents an overview of the CCI programme of the European Space Agency (ESA), primarily from a programmatic point of view but also highlights some of the many scientific achievements. The EO datasets produced by CCI are made available under an open and free data policy via the CCI Open Data Portal (http://cci.esa.int/content/cci-open-data-portal) and – as shown in this Special Issue – can be used for a large range of applications. This is envisaged to grow as the current programme transitions into CCI + (2017–2024) that will focus on the development of new ECVs, with the current ECV datasets transitioning to operational services within the Copernicus Climate Change Service (C3S). Overall, CCI aims to enhance the contribution of European EO science to future United Nations Framework Convention on Climate Change (UNFCCC) Intergovernmental Panel on Climate Change (IPCC) assessments, as part of the international coordinated action on climate observations.

This Special Issue contains 19 publications covering many different ECVs such as aerosols, clouds, ozone, greenhouse gases (carbon dioxide and methane), land cover, fire, soil moisture, ocean colour, sea surface temperature, sea level, sea ice, ice sheets and glaciers. Some of these ECVs are addressed in several publications and some publications are addressing several ECVs, in particular papers led by representatives of the Climate Modelling User Group (CMUG) of CCI (e.g., Lauer et al. and Ford et al.).

We, the (Guest) Editors, are proud to present this Special Issue. We think that the envisaged goal for this Special Issue has been met and we would like to thank all who have contributed to this. In particular, we would like to thank the authors for their papers and the reviewers for dedicating their expertise and time in support of the review process. We also highly appreciate the assistance of RSE's Managing Editor, Betty Schiefelbein.

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