SPECIAL PROJECT PROGRESS REPORT

Progress Reports should be 2 to 10 pages in length, depending on importance of the project. All the following mandatory information needs to be provided.

Reporting year	2018……
Project Title:	Improving Stochastic Parametrisation of Convection through the use of Data Assimilation ……..……
	……..……
Computer Project Account:	spgbtpps……
Principal Investigator(s):	Tim Palmer, Hannah Christensen……
	……..……
Affiliation:	University of Oxford……
Name of ECMWF scientist(s) collaborating to the project (if applicable)	Mark Rodwell, Antje Weisheimer……
	……..……
Start date of the project:	Jan 1st, 2016……
Expected end date:	December 31st 2018……

Computer resources allocated/used for the current year and the previous one
(if applicable)
Please answer for all project resources

		Previous year		Current year	
		Allocated	Used	Allocated	Used
High Performance Computing Facility	(units)	2M	0	2M	0
Data storage capacity	(Gbytes)				

Summary of project objectives

(10 lines max)

We planned to compare and test different stochastic parametrisation schemes (SPPT, iSPPT and Stochastic Backscatter – the dominant form of stochastic parametrisation used by the Met Office) in data assimilation mode, looking at the spread of analysis increments vs 6 hour error.

Summary of problems encountered (if any)

(20 lines max)

Our project was conditional on funding from a project proposal made to the NERC/Met Office theme PARACON. We were unsuccessful, possibly because the project was initially focussed on ECMWF Stochastic Schemes rather than Met Office Stochastic Schemes. As a result, although we did a number of preliminary tests using project units in 2016, we have been unable to utilise the units in 2017 or 2018. I (TNP) had hoped to be able to find resources elsewhere, and so did not want to formally terminate this project earlier. However, to date this has not proved possible. Despite this our preliminary tests did contribute to a published paper – see below.

We think that data assimilation provides an extraordinarily powerful technique to test alternate proposals for stochastic parametrisation, and, given the recent decision to drop backscatter by ECMWF, whilst it being the dominant form of stochastic parametrisation at the the Met Office, that testing the merits and drawbacks of these two schemes is vital.

We hope it will be possible to resubmit another Special Topic proposal on this subject in the future.

Summary of results of the current year (from July of previous year to June of current year)

This section should comprise 1 to 8 pages and can be replaced by a short summary plus an existing scientific report on the project

The need to test different proposals for stochastic parametrisation (e.g. backscatter vs SPPT) has never been more important and testing in data assimilation mode could provide one of the most rigorous tests possible. We hope to return to this topic in another Special Project, once suitable funding has been obtained.

List of publications/reports from the project with complete references

Christensen, H. M., Lock, S.-J., Moroz, I. M., and Palmer, T. N., 2017, Introducing Independent Patterns into the Stochastically Perturbed Parametrisation Tendencies (SPPT) scheme. Q. J. Roy Meteor Soc., 143(706), 2168–2181. DOI: 10.1002/qj.3075

Summary of plans for the continuation of the project

(10 lines max)

All the science objectives remain in place and we believe that the underpinning science is both strong and extremely relevant for NWP centres. We need to find appropriate funding.

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