CONTENTS

PUBLICATION POLICY

The *ECMWF Newsletter* is published quarterly. Its purpose is to make users of ECMWF products, collaborators with ECMWF and the wider meteorological community aware of new developments at ECMWF and the use that can be made of ECMWF products. Most articles are prepared by staff at ECMWF, but articles are also welcome from people working elsewhere, especially those from Member States and Co-operating States. The *ECMWF Newsletter* is not peer-reviewed.

Editor: Bob Riddaway

Typesetting and Graphics: Anabel Bowen with the assistance of Simon Witter.

Any queries about the content or distribution of the *ECMWF Newsletter* should be sent to Bob.Riddaway@ecmwf.int

Guidance about submitting an article is available at www.ecmwf.int/publications/newsletter/guidance.pdf

CONTACTING ECMWF

Shinfield Park, Reading, Berkshire RG2 9AX, UK

Fax:		+44 118 986 9450
Telephone:	National	0118 949 9000
	International	+44 118 949 9000
ECMWF website		www.ecmwf.int

Weather science

Weather science and forecasting have developed hugely over recent decades and expectations are high for even greater advances in the years to come. We can look forward to new sources of atmospheric observations, faster supercomputers and further advances in the science as well as the transition to a fully Earth-system approach. The "weather enterprise" is emerging as a diverse partnership between public, private and academic-sector meteorologists, forecasters, computing experts, social scientists and application developers from many countries. The importance of harnessing the talents and enthusiasm of the next generation is crucial.

It is with this backdrop that the first ever World Weather Open Science Conference (WWOSC), with the theme "The weather: what's the outlook?", took place in Montreal, Canada, from 16 to 21 August 2014. More than 1,000 participants from over 50 countries discussed the development of weather science and its many applications, making WWOSC a resounding success.

Participants (including many from ECMWF) investigated opportunities for achieving major breakthroughs in weather science at the same pace as in the last 20 to 30 years, if not faster. Frequently the focus was on the prediction of extreme weather hazards. The goal of achieving seamless predictions – integrated modelling systems for all time scales, from a few minutes to weeks, months and years ahead – received strong support. The integration of weather and climate science was confirmed as an important objective for the next decade, as was the international cooperation between nations and between scientists, practitioners and users.

The Conference explored applications and uses of weather forecasts, focussing on social sciences and economic impacts of weather in many sectors such as energy, health and insurance. A large group attending the conference were early-career scientists who played a major and active part in the meeting. They discussed the possibility of forming an association for early-career weather, climate and environment scientists dedicated to working together to develop weather science and its applications.

The WMO World Weather Research Programme is a key vehicle for internationally-collaborative research projects that helps address the issues raised at the Conference. ECMWF staff, along with many colleagues around the world, will play a major part in three new programmes – polar prediction, subseasonal-to-seasonal and high-impact weather.

What is clear today is that no one individual, group or nation can go it alone – meteorology is a huge global enterprise that demands co-operation and collaboration if society is to have advance warning of extreme weather so that people can get out of harm's way.

Alan Thorpe

End of Conference Statement

"It now seems apparent that over the next 20 years, forecasters are going to need Earth-system modelling. Today's weather forecasts and climate predictions are likely to evolve towards seamless weather-climate-impacts forecasting. In addition to the atmosphere and oceans, they will integrate increasingly accurate information on topography, land-use change, vegetation, rivers, lakes, clouds and socio-economic trends to provide user-specific decision-support services that will touch almost every part of our lives."

Michel Beland and Alan Thorpe, Conference Co-Chairs