

## PREFACE

There is little doubt that weather/climate considerations are becoming a very important element in policy/decision making relevant for the energy sector, both within the context of climate change adaptation and climate change mitigation. For instance, information from weather forecasts is currently routinely employed in the energy sector – from energy producers to suppliers, and from financial analysts to national regulators – to assist in decision-making. Given the diversity of the energy sector, this information is used for several purposes such as for pricing the cost of energy or that of financial instruments. Other climate information, such as that from seasonal and decadal forecasts, is also starting to be included in the decision processes in the energy sector. This weather/climate information, especially when severe weather events are expected, will likely become a regular factor in climate change adaptation contingent strategies, including in the formulation of climate change adaptation regulations. In addition, weather/climate information is, naturally, a key element in the development and use of renewable energy resources such as wind, solar and hydropower.

A better understanding of what climate information can and can not provide, how it might be used in context, and an improvement in communication channels, certainly helps the interaction and flow of information between climate scientists and energy experts. The NATO Advanced Research Workshop (ARW) *Weather/Climate Risk Management for the Energy Sector* was an excellent opportunity to bring the communities involved in the exchange of weather/climate information together. The 28 workshop participants including weather/climate scientists, energy experts, institutional specialists, and economists engaged in lively and constructive discussions on ways to progress the above mentioned issues and eventually formulated recommendations aimed at improving collaborative use of information by climate scientists and the energy industry.

About 20 papers were presented at the workshop and these set the scene for the discussions of the three working groups (see below). The papers themselves constitute the backbone of this book, which has been subdivided into three parts:

1. Weather & Climate Fundamentals for the Energy sector
2. Policies for the transfer between Weather/Climate and Energy sectors
3. Energy sector practices, needs, impediments including Current Weather/Climate information transfer to the Energy sector

The three working groups (WGs) were formed to address the five objectives of the Workshop. These objectives were:

- A) To identify vulnerabilities of energy sector to extreme weather events in the context of climate change adaptation
- B) To identify impediments to the use of weather/climate information for the energy sector in the context of climate change adaptation
- C) To suggest ways to improve and/or facilitate the transfer of knowledge between weather/climate scientists and the energy experts to allow an optimal use of climate risk management
- D) To outline proposals to improve the way in which weather/climate information is used for modelling demand and to provide warnings for potential disruptions on energy operations and infrastructure
- E) To discuss possible contributions of the weather/climate scientists and the energy experts to climate change adaptation policies for energy security

The recommendations are presented in the last chapter and references therein.

This NATO ARW was held in the beautiful setting of Santa Maria di Leuca (Italy) between 6 and 10 October 2008 and was attended by leading academic scientists, industry experts in the various energy specialities (oil, gas, renewable, finance), policy makers and non-governmental organisation practitioners. It has been a privilege to have so many worldwide experts in the field of *weather/climate and energy* as participants at the ARW. Their enthusiastic participation and their contributions to this book can not be overstated<sup>1</sup>. All participants provided very positive feedbacks at the end of the Workshop on what had been achieved during the week. Several new links were created and many ideas for future collaborations were discussed. Indeed, some of the participants have already established new collaborations.

It would have not been possible to organise this ARW without the collaboration and support of many people: the team at the NATO Environmental and Earth Science & Technology (EST) Programme with *Mrs Alison Trapp* (Secretary) and *Dr Fausto Pedrazzini* (Programme Director), who assisted in securing a smooth development of the ARW; *Mrs Elena Bertocco* (ARW Secretary) assisted with the copious queries from participants while keeping at bay lovely little Edward and Jacqueline; the members of the Organising Committee, *Mr Mohammed Sadeck Boulahya* (ARW Co-Director),

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<sup>1</sup> For more information on the ARW, see: [http://www.climate-development.org/atrocicoli/nato\\_arw/index.html](http://www.climate-development.org/atrocicoli/nato_arw/index.html)

*Prof. Robert Gurney, Dr Mike Harrison, Dr Pascal Mailier and Prof. Oleg Pokrovsky; Mr Jonathan Saunders and Ms Kathryn Needham* (graphic creators) for producing high quality promotional material; *Mrs Annamaria Caputo* and all the staff at the Hotel Terminal (S. Maria di Leuca) for their warm and professional hospitality and for the extremely well planned and thoroughly enjoyable social and cultural programme. I am particularly grateful to the organisations that supported this ARW financially: NATO and the Environmental Systems Science Centre of the University of Reading.

I hope this book will provide a useful reference for all those keen to venture in the fascinating interaction and communication between the weather/climate science and the energy industry.

Alberto Troccoli  
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