

## SCIENTIFIC COMMITTEE

**Dr. Andrea Buzzi** (ISAC - CNR, Bologna)  
**Prof. Sergio Alonso** (UIB, Palma de Mallorca)  
**Dr. Piero A. Chessa** (SAR, Sassari)  
**Dr. Kostas Lagouvardos** (NOA, Athens)  
**Prof. Dino Zardi** (Università di Trento)

On-line information, preliminary program and application form are available at:

<http://www.sar.sardegna.it/MSMM/>

## CONTACT

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## TRAVEL INFORMATION

The most convenient way to reach Alghero is by plane using the local airport which has daily flights to Rome, Milano and London Stansted. The airport is 12 km from the town Centre.

There is also a harbour 25km far from Aghero. It is located at Porto Torres and has links with Genoa and Marseille.



## ACCOMODATION

Accommodation will be arranged in the campus hosting the School.

Extra accommodation will be available in a hotel in Alghero. Please refer to the web site (<http://www.sar.sardegna.it/MSMM/>) for further details.



# Mesoscale Structure of Cyclones

**Alghero**  
**7-11 June 2004**



SERVIZIO AGROMETEOROLOGICO  
REGIONALE PER LA SARDEGNA



Istituto di Scienze  
dell'Atmosfera e del Clima



Università di Trento

## AIM

The purpose of the [Mediterranean School on Mesoscale Meteorology \(MSMM\)](#) is to make students and young scientists acquainted with a broad range of topics classified as Mesoscale Meteorology and to introduce recent advances on regional scale weather systems to people involved in operational weather forecast.

The processes encompassed by the definition of Mesoscale Meteorology are related to meteorological phenomena such as jet streaks, fronts, structures of midlatitude cyclones, tropical cyclones, thunderstorms, tornadoes, heavy precipitation possibly leading to flash floods, etc.

There are a number of research projects and specialist groups focused on the study and prediction of these phenomena. Understanding these phenomena is a challenging scientific work whose outcomes are often the main source of progresses in weather forecasting, implying general benefits to the society.

The increasing knowledge in this field helps in managing the risk linked to severe weather events, generally mesoscale phenomena, and in reducing the related economic and societal losses.

The [Mediterranean School on Mesoscale Meteorology](#) provides an opportunity for senior scientists to transmit their knowledge to younger generations involved both in scientific research and operational activities.

## FOCUS

The first edition of the **MSMM** will be focused on the mesoscale structure of cyclones. Cyclones are the main source of severe weather events like wind storms and flash floods. The dynamical and physical aspects of these phenomena will be analyzed with a particular emphasis on the problems related to the interaction of different spatial and time scale and the issues related to their forecast. Some aspects peculiar to the Mediterranean Region will be also considered.

## LECTURES

### Alan Thorpe

#### **Basic dynamics and life cycle of extra-tropical cyclones. Fronts and frontogenesis. Forecasting and data assimilation methods.**

- Introduction to synoptic and mesoscale dynamics.
- The dynamics of extratropical cyclones: Part 1.
- The dynamics of extratropical cyclones: Part 2.
- The dynamics of fronts and jets.
- Forecasting of extratropical cyclones.
- THORPEX: A Global Atmospheric Research Programme.

### Kerry Emanuel

#### **Diabatic processes in tropical and extra-tropical cyclones: role of condensation and surface heating and friction. Symmetric instability and rainbands.**

- Overview of the thermodynamics of moist air and the theory of convection.
- Slantwise convection in tropical and extratropical cyclones.
- Tropical cyclone energetics.
- Axisymmetric intensification dynamics of tropical cyclones.
- Polar lows, hybrid storms, and extratropical transition of tropical cyclones.
- Tropical cyclones in the climate system.

### Charles Doswell

#### **Hazardous mesoscale convective systems associated with mid-latitude cyclones. Diagnosis of mesoscale structures and phenomena in mid-latitude cyclones.**

- Mesoscale convective systems.
- Severe convection. Hail, wind, and tornadoes.
- Flash flood-producing convection.
- Diagnosis of mesoscale structures in mid-latitude cyclones: Part 1.
- Diagnosis of mesoscale structures in mid-latitude cyclones: Part 2.

### Romualdo Romero

#### **Sensitivity of cyclones to boundary and physical factors and initial conditions. Specific aspects of Mediterranean cyclones.**

- Sensitivity of cyclones to boundary and physical factors. The factor separation technique.
- Sensitivity of cyclones to initial conditions: A numerical approach through potential vorticity inversion.
- Impacts and interactions of potential vorticity anomalies in mid-latitude cyclones.
- Specific aspects of Mediterranean cyclones.
- MEDEX: a Mediterranean atmospheric research programme

## CALENDAR AND SCHEDULE

<b>Deadline for applications</b>	<b>15/01/2004</b>
<b>Deadline for notification of acceptance to applicants</b>	<b>10/02/2004</b>
<b>Confirmation of participation and payment (10% discount)</b>	<b>28/02/2004</b>
<b>Confirmation of participation and payment</b>	<b>31/03/2004</b>

## APPLICATION REQUIREMENTS

Attendance is open to students at a Phd level, young researcher and experienced meteorologists from all over the world and displaying adequate background and good proficiency in atmospheric sciences and/or related disciplines.

The official language of the school is English.

To apply to the MSMM, applicants must use the online application form on the School web page (<http://www.sar.sardegna.it/MSMM/>) and submit it not later than the 15th of January 2004.

## SELECTION

The maximum number of students for the School is set to 50. The Scientific Committee will accomplish the applications evaluation and will notify the acceptance by the 10th of February 2004.

## CONFIRMATION OF ACCEPTANCE

The students admitted to the School have to confirm their attendance not later than the 31st to March 2004.

## REGISTRATION FEE

The registration fee is 650 Euro and includes:

- Attendance to lectures and afternoon discussions.
- Weekly day lunches.
- Weekly travel card for the bus to the town center.
- Lecture notes.

## REFUNDING POLICY

Registration fee will be refunded if notice of cancellation received to the School Secretary by the 30th of April 2004.

The cancellation fee is 130 Euro.