



## WCRP-ICTP Summer School on Attribution and Prediction of Extreme Events

Cosponsor(s): WCRP, ICSU, IUGG, ACE CSS, US CLIVAR, NOAA, DoE, APN  
Organizer(s): S. Seneviratne, F. Zwiers. ICTP Local Organizer: A. Tompkins, A. Pirani  
Trieste - Italy, 21 July 2014 - 1 August 2014

### Final programme

**Monday, 21 July** (Room: Adriatico Guest House Giambiagi Lecture Hall)

**21 July 2014**

<b>08:15 - 09:00</b>	(Room: Adriatico Guest House (Lower Level 1)) <b>Registration</b>
<b>09:00 - 09:45</b>	<b>D. Karoly</b> <b>What is an extreme event?</b>
<b>09:45 - 10:30</b>	<b>S. Seneviratne</b> <b>How do extremes changes in the context of climate change?</b>
<b>10:30 - 11:00</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>11:00 - 12:00</b>	--- Registration & Administrative formalities ---
<b>12:00 - 14:00</b>	--- Lunch ---
<b>14:00 - 16:00</b>	<b>E. Gilleland</b> <b>Statistical Theory</b>
<b>16:00 - 16:30</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---

- 16:30 - 17:30** (Room: Adriatico Guest House - Eklund Informatics Lab (Lower Level 1))  
**Presentation of potential projects and first group discussions**
- 19:00 - 21:00** (Room: Adriatico Guest House (Terrace))  
 --- Welcome reception ---

**Tuesday, 22 July** (Room: Adriatico Guest House Giambiagi Lecture Hall)

**22 July 2014**

- 09:00 - 09:45** **P. Naveau**  
**Extreme Value Theory (multi-variate)**
- 09:45 - 10:30** **P. Naveau**  
**Extreme Value Theory (non-stationarity)**
- 10:30 - 11:00** (Room: Adriatico Guest House (Terrace))  
 --- Coffee break ---
- 11:00 - 12:30** **E. Gilleland**  
**Introduction to R & NCAR extreme package**
- 12:30 - 14:00** --- Lunch ---
- 14:00 - 15:30** (Room: Adriatico Guest House Informatics Lab.)  
**E. Gilleland**  
**Introductory exercises with NCAR extreme package**
- 15:30 - 16:00** (Room: Adriatico Guest House (Terrace))  
 --- Coffee break ---
- 16:00 - 17:30** (Room: Adriatico Guest House Informatics Lab.)  
**Group projects**
- 19:30 - 20:30** --- Dinner ---
- 20:30 - 22:30** **P. Naveau**  
**Statistical Theory ? Advanced talk**

**Wednesday, 23 July** (Room: Adriatico Guest House Giambiagi Lecture Hall)

**23 July 2014**

- 09:00 - 09:45** **F. Zwiers**  
**Detection and Attribution (General introduction)**
- 09:45 - 10:30** **F. Zwiers**  
**Detection and Attribution (Optimized & Non-optimized methods)**
- 10:30 - 11:00** (Room: Adriatico Guest House (Terrace))  
 --- Coffee break ---
- 11:00 - 12:30** (Room: Adriatico Guest House Informatics Lab.)  
**F. Zwiers/Q. Wan**  
**Practical exercise with R: Optimal fingerprinting**

<b>12:30 - 14:00</b>	--- Lunch ---
<b>14:00 - 15:30</b>	(Room: Adriatico Guest House Informatics Lab.) <b>Group projects</b>
<b>15:30 - 16:00</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>16:00 - 17:30</b>	(Room: Adriatico Guest House Informatics Lab.) <b>Group projects</b>

#### Thursday, 24 July (Room:Adriatico Guest House Giambiagi Lecture Hall)

24 July 2014

<b>09:00 - 10:00</b>	<b>D. Karoly</b> <b>Physical mechanisms (Large-scale circulation)</b>
<b>10:00 - 10:30</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>10:30 - 12:30</b>	<b>L. Alexander</b> <b>Climate extremes: Data issues</b>
<b>12:30 - 14:00</b>	--- Lunch ---
<b>14:00 - 15:30</b>	(Room: Adriatico Guest House Informatics Lab.) <b>Group projects</b>
<b>15:30 - 16:00</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>16:00 - 17:30</b>	(Room: Adriatico Guest House Informatics Lab.) <b>Group projects</b>
<b>19:00 - 21:00</b>	--- Dinner Outing --- The bus will depart from outside the Adriatico Guesthouse at 7 p.m. Dinner will be held at the restaurant "Lupinc" on the Karst.

#### Friday, 25 July (Room:Adriatico Guest House Giambiagi Lecture Hall)

25 July 2014

<b>09:00 - 10:30</b>	<b>A. Kumar</b> <b>Prediction - seasonal prediction systems</b>
<b>10:30 - 10:50</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>10:50 - 11:45</b>	<b>F. Doblas-Reyes</b> <b>Prediction - Predictability and extremes</b>
<b>11:45 - 12:30</b>	<b>A. Kumar</b> <b>Prediction - seasonal prediction systems</b>

<b>12:30 - 14:00</b>	--- Lunch ---
<b>14:00 - 15:30</b>	(Room: Adriatico Guest House Informatics Lab.) <b>Group projects</b>
<b>15:30 - 16:00</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>16:00 - 17:30</b>	<b>Project progress reports (15 min each)</b>

**Monday, 28 July** (Room:Adriatico Guest House Giambiagi Lecture Hall)

**28 July 2014**

<b>09:00 - 09:45</b>	<b>F. Zwiers</b> <b>Detection and attribution (Extreme values)</b>
<b>09:45 - 11:00</b>	<b>F. Zwiers</b> <b>Detection and attribution (Extreme values)</b>
<b>11:00 - 11:30</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>11:30 - 13:00</b>	(Room: Adriatico Guest House Informatics Lab.) <b>F. Zwiers/Q. Wan</b> <b>Practical exercise with R: D&amp;A Extreme values</b>
<b>13:00 - 14:00</b>	--- Lunch ---
<b>14:00 - 15:30</b>	(Room: Adriatico Guest House Informatics Lab.) <b>Group projects</b>
<b>15:30 - 16:00</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>16:00 - 17:30</b>	(Room: Adriatico Guest House Informatics Lab.) <b>Group projects</b>

**Tuesday, 29 July** (Room:Adriatico Guest House Giambiagi Lecture Hall)

**29 July 2014**

<b>09:00 - 09:45</b>	<b>S. Seneviratne</b> <b>Physical mechanisms (Land-climate feedbacks)</b>
<b>09:45 - 10:30</b>	<b>S. Seneviratne</b> <b>Physical mechanisms (Local vs large-scale drivers)</b>
<b>10:30 - 11:00</b>	(Room: Adriatico Guest House (Terrace)) --- Coffee break ---
<b>11:00 - 12:30</b>	<b>R. Orth / S. Seneviratne</b> <b>Practical exercise -land-climate inter-actions and soil moisture memory</b>
<b>12:30 - 14:00</b>	--- Lunch ---

**14:00 - 15:30** (Room: Adriatico Guest House Informatics Lab.)  
**Group projects**

**15:30 - 16:00** (Room: Adriatico Guest House (Terrace))  
--- Coffee break ---

**16:00 - 17:30** (Room: Adriatico Guest House Informatics Lab.)  
**Group projects**

**Wednesday, 30 July** (Room:Adriatico Guest House Giambiagi Lecture Hall)

**30 July 2014**

**09:00 - 09:45** **P. Stott**  
**Event attribution: Theory**

**09:45 - 10:30** **P. Stott**  
**Event attribution: Theory**

**10:30 - 11:00** (Room: Adriatico Guest House (Terrace))  
--- Coffee break ---

**11:00 - 12:30** (Room: Adriatico Guest House Informatics Lab.)  
**F. Otto**  
**Practical exercise with climate prediction.net data**

**12:30 - 14:00** --- Lunch ---

**14:00 - 15:30** (Room: Adriatico Guest House Informatics Lab.)  
**Group projects**

**15:30 - 16:00** (Room: Adriatico Guest House (Terrace))  
--- Coffee break ---

**16:00 - 17:30** (Room: Adriatico Guest House Informatics Lab.)  
**Group projects**

**18:00 - 19:30** **F. Giorgi**  
**Response of hydroclimatic regimes to global warming**

**Thursday, 31 July** (Room:Adriatico Guest House Giambiagi Lecture Hall)

**31 July 2014**

**09:00 - 09:45** **F. Otto**  
**Event attribution: Theory**

**09:45 - 10:30** **F. Otto**  
**Event attribution: Theory**

**10:30 - 11:00** (Room: Adriatico Guest House (Terrace))  
--- Coffee break ---

**11:00 - 12:30** (Room: Adriatico Guest House Informatics Lab.)  
**F. Otto**  
**Practical exercise with climate prediction.net data**

**12:30 - 14:00** --- Lunch ---

**14:00 - 15:30** (Room: Adriatico Guest House Informatics Lab.)  
**Group projects**

**15:30 - 16:00** (Room: Adriatico Guest House (Terrace))  
--- Coffee break ---

**16:00 - 17:30** (Room: Adriatico Guest House Informatics Lab.)  
**Group projects**

**19:00 - 21:00** (Room: Adriatico Guest House (Terrace))  
--- End of school Dinner ---

**Friday, 1 August** (Room:Adriatico Guest House Giambiagi Lecture Hall)

**1 August 2014**

**09:00 - 09:45** **K. Koshi**  
**Disaster Risk Management for Sustainable Development**

**09:45 - 10:30** **Final Project wrap up and ongoing collaboration planning**

**10:30 - 11:00** (Room: Adriatico Guest House (Terrace))  
--- Coffee break ---

**11:00 - 12:30** **Project presentations (30-minutes each)**

**12:30 - 14:00** --- Lunch ---

**14:00 - 15:00** **Project presentations (30-minutes each)**