



Pre-Conference Radar Training Workshop

Gi4DM 2018

GeoInformation For
Disaster Management

18
March
2018

Istanbul Technical University

Suleyman
Demirel
Cultural Center
Istanbul
Turkey

www.
gi4dm2018
.org



K2 Conference and Event Management
Kosuyolu Mh. Ali Nazime Sk. No: 45 Kosuyolu
34718 Kadikoy / Istanbul
Phone: +90 (216) 428 95 51 - Fax: +90 (216) 428 95 91
E-mail: gi4dm@k2-events.com
www.k2-events.com

On the occasion of the Gi4DM conference and under the aegis of the URSI Working Group F.1 (on Education and Training in Remote Sensing and Wave Propagation) and the ISPRS ICWG III/IVa, a one-day radar-training workshop of title:

“Advanced Radar Methods and their Application in Disaster Management” will be held on Sunday, 18th of March, 2018, at the venue of the Gi4DM conference due to be held in Istanbul, during 19-22 March 2018. The event is jointly organised under a co-operation between the Technical University of Chemnitz, Institut of Mines-Telecom-Telecom ParisTech, and ITU Istanbul.

Admission: The training workshop is open to all participants registered for the conference. **The workshop is free of cost but capacity is limited.** Admission to the workshop will be on first-come-first-serve basis. Potential attendees are, however, advised to inform the course facilitators (madhu.chandra@etit.tu-chemnitz.de, tullio.tanzi@telecom-paristech.fr, fsunar@itu.edu.tr, oaltan@itu.edu.tr) of their interest in attending the workshop.

Computing Recommendation/Requirements: As some hands-on features make use of MATLAB, the participants are advised to bring along their laptops with MATLAB program.

Room: To be posted at the conference office/secretariat.

Date and Duration: Sunday 18th of March 2018, ca. 10:00 – 17:00 (including breaks).

Course Coordination: Prof. Madhu Chandra and Prof. Tullio Tanzi.

Course Description: The Workshop will provide insight into radar fundamentals that will enable the participants to understand the present day advanced remote sensing radars and their applications in disaster management.

Topics to be considered include: introduction to radar and wave propagation fundamentals, understanding what radars really measure, key radar observables and their resolution; survey of methods employing diversity of polarisation, waveform, channels, and antenna beams; fundamentals of disaster management, monitoring and observation of disaster related events, application of remote sensing data.

The course should particularly appeal to scientists and engineers who use radar remote sensing data in the management and monitoring of disasters. The course combines oral presentations with some hands-on exercises (using MATLAB routines) to illustrate radar fundamentals. Despite the technical features of the course contents, their presentation will be specially tailored to appeal to both early-stage and established professionals from all backgrounds, who are now engaged in the fields of remote sensing, disaster management, or GIS.

In this spirit, the workshop will feature the following key topics:

Part 1: Introduction and Radar Remote Sensing

Duration: approximately 4 hours (with breaks)

Topics:

Introduction: Prof Orhan ALTAN, Istanbul Technical University

- Disasters, What Why? . . .

Radar Remote Sensing

Presenter: Prof M. Chandra, Technische Universität Chemnitz, Germany.

1. Key radar observables and their methods of measurement
2. Physical interpretation of radar observables and their resolution
3. Survey and overview of the modern radar methods based on the Doppler-effect, diversity of polarisation, waveforms, channels, and antenna beams.
4. Simple hands-on exercises to demonstrate radar fundamentals and the physical interpretation of radar data.

Session 2: Application-based Approach to Disaster Management and the Role of Radar Remote Sensing.

Presenter: Prof. Dr. Tullio Tanzi, Institut Mines-Telecom – Telecom ParisTech. LTCI UMR, CNRS, Télécom ParisTech-LabSoC, c/o EURECOM, Campus SophiaTech Les Templiers, France.

Duration: 2 hours

Topics:

Introduction

Radio Sciences versus Disaster Management requirements

Radar and optical remote sensing

New approaches and future systems: GPR, UAV, etc.

Design consideration for humanitarian relief dedicated system