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To the Heads of Delegation of
Member States of EUMETSAT

Your reference	Your letter dated	Our reference	Darmstadt
Votre référence	Votre lettre du	Notre référence	
		EUM/OPS/LET/18/982672	23 March 2018

Subject: Invitation letter for the International Summer School in Bracciano, Italy 2018

Dear Sir or Madam,

EUMETSAT and the Cooperative Institute for Meteorological Satellite Studies (CIMSS) are pleased to invite your institute to nominate a candidate to participate at the *"International Summer School on Applications with the Newest Multi-spectral Environmental Satellites"*, to be held in Bracciano, Italy from 11 to 20 June 2018.

In case you are not able to nominate a candidate, please forward this invitation to suitable students (post graduate level) from other institutes or universities in your country. More information about the course and the draft agenda of the programme of the course are attached as *Annex I*.

The course will be conducted in English. The participants must have an academic degree either in Meteorology, Physics, Environmental Sciences or Environmental Engineering. Candidates will be selected on the basis of their proven experiences in environmental remote sensing. EUMETSAT will provide financial support to a limited number of the selected candidates upon their request to cover their travel expenses.

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All participants are strongly advised to take out personal travel and medical insurance. No responsibility for any incident during the course can be accepted by EUMETSAT or the local organisers.

In order to apply for the course, please follow the following steps:
Step 1. Go to the EUMETSAT Training website:

http://training.eumetsat.int/mod/questionnaire/view.php?id=10423

Step 2. In order to apply, you will need to click on the "**Apply for Summer School 2018**" link, fill in the questionnaire with your data and submit it.

Please note that if you do not have an account on this page, **you will need to create one before you can apply**. Click on 'Log in' (top right corner of the page) and register using the 'Create new account'. Next, access the link in Step 1 and fill in your application. Alternatively, you can always access the application in 'Apply for Courses' from the home page. Should you have problems with the online application, please send an e-mail to training@eumetsat.int.

Applications have to be submitted no later than **27 April 2018**. Selected participants will be informed about their acceptance no later than **4 May 2018**.

Yours sincerely,

Alain Ratier
Director-General

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Annex I

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International School on
Applications with the Newest Multi-spectral Environmental Satellites
11 – 20 June 2018, Bracciano, Italy

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Objectives

An in depth explanation of methods and techniques used to extract information from environmental satellite data, with emphasis on the latest measuring technologies. The course will consist of lectures, laboratory sessions, group lab projects, homework and tests. The results from each of the group projects will be presented to the class by the participating students. English is the official language of the School. All provided material will be in English.

Main Topics

A. Lectures:

- Radiation and the Radiative Transfer Equation
- Spectral signatures from Earth's surface and atmosphere
- High resolution sounding using infrared high resolution spectral data
- Multi-spectral sensors for imaging
- Evolving to the Future Global Observing System

B. Labs:

- Using McIDAS-V (a JAVA based tool) to manipulate multi-spectral data
- Staging, Viewing, Interrogating MODIS, AVHRR, AIRS, AMSU, IASI, AHI/ABI, SEVIRI data
- Group Projects

Visualization Tools for Lab

McIDAS-V is used to interrogate and view multispectral data in the labs; it is available for free at http://www.ssec.wisc.edu/mcidas/software/v/

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Draft Agenda

Monday, 11 June

am	Welcome	Introduction of students and teachers plus discussion of agenda (All)
	Opening Quiz	ALL
	Lecture	Electromagnetic spectrum and radiative transfer – **Bennartz**
	Lab	Introduction to McIDAS-V (case from 6 November 2005)
pm	Lecture	Satellites, instruments and orbits – **Bennartz, Kerkmann**
	Lab	Smoke in Botswana (29 August 2008)
	Lab	Discussion of results

Tuesday, 12 June

am	Lecture	RGB Products overview – **Kerkmann**
	Lab	Wildfires in South Africa (1 September 2008)
	Lab	Discussion of results
pm	ALL	Daily Weather Briefing
	Lecture	Infrared soundings (multi-spectral and hyperspectral) – **Bennartz**
	Lab	Investigate a tropical depression with AIRS
	Lab	Discussion of results

Wednesday, 13 June

am	Lecture	Microwave soundings – **Bennartz**
	Lab	Investigate a tropical depression with MODIS and AMSR in addition to AIRS
	Lab	Discussion of results
pm	ALL	Daily Weather Briefing
	Lecture	Aerosols 1 (dust, smoke) – **Kerkmann**
	Lab	Dust / Smoke discrimination (22 October 2007)
	Lab	Discussion of results

Thursday, 14 June

am	Lecture	Aerosols 2 (ash and SO2) – **Kerkmann**
	Lab	a) Thin ash and ice clouds (15 April 2010) b) Volcanic Ash and SO2 clouds (6 June 2011)
	Lab	Discussion of results
pm	ALL	Daily Weather Briefing
	Lecture	Looking at clouds (cloud properties, VIS and NIR) – **Bennartz**
	Lab	Deep convection over Burkina Faso (5 April 2007)
	Lab	Discussion of results

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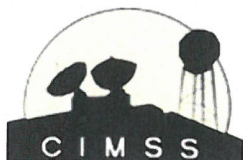
Friday, 15 June

am	Lecture	Looking at clouds and precipitation – **Bennartz**
	Lab	Precipitation case with microwave channels from AMSR-E and an overpass by CloudSat
	Lab	Discussion of results
pm	ALL	Daily Weather Briefing (for weekend)
	Lecture	Climate applications, inter-calibration,long-term stability – **Bennartz**
	Lab	Looking at Arctic sea ice extent with AMSR-E
	Lab	Discussion of results

Weekend, 16 – 17 June (possible private visit to Rome)

Monday,18 June

am	Lecture	How to order data (from EUMETSAT, NOAA etc.) - **Gencic**
	Lab	Student Lab (with downloading of data)
	Lab	Discussion of results
pm	All	Daily Weather Briefing
	Lecture	Cloud microphysics & Day/Night Microphysics - **Kerkmann** RGB products
	Lab	Exploring different cloud scenes (3 cases)
	Lab	Discussion of results

Tuesday, 19 June

am	Lecture	Latest RGB Developments (tuning, new RGBs) – **Kerkmann**
	Lab	Looking at low clouds (13 July 2014)
	Lab	Discussion of results
pm	ALL	Daily Weather Briefing
	Lecture	Low-level humidity seen in (VIS and) IR channels - **Kerkmann**
	Lab	Moisture boundary cases (16 October 2014, 14 July 2006)
	Lab	Discussion of results

Wednesday, 20 June

am	Lecture	Products of the Hydrology SAF – **Melfi**
	Final Quiz	ALL
	Course Evaluation	ALL
	Summary & Concluding Ceremony (end at 12.30 h)	

AM sessions: 9:00 am – 12:30 pm
PM sessions: 2:00 pm – 5:30 pm