

# NWP Training course, Parametrization of subgrid physical processes

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# European Centre for Medium-Range Weather Forecasts (ECMWF)

ECMWF is an international organisation with

- 23 Member States
- 12 Cooperating States

ECMWF's role is to address the critical and most difficult research problems in medium-range NWP that no one country could tackle on its own

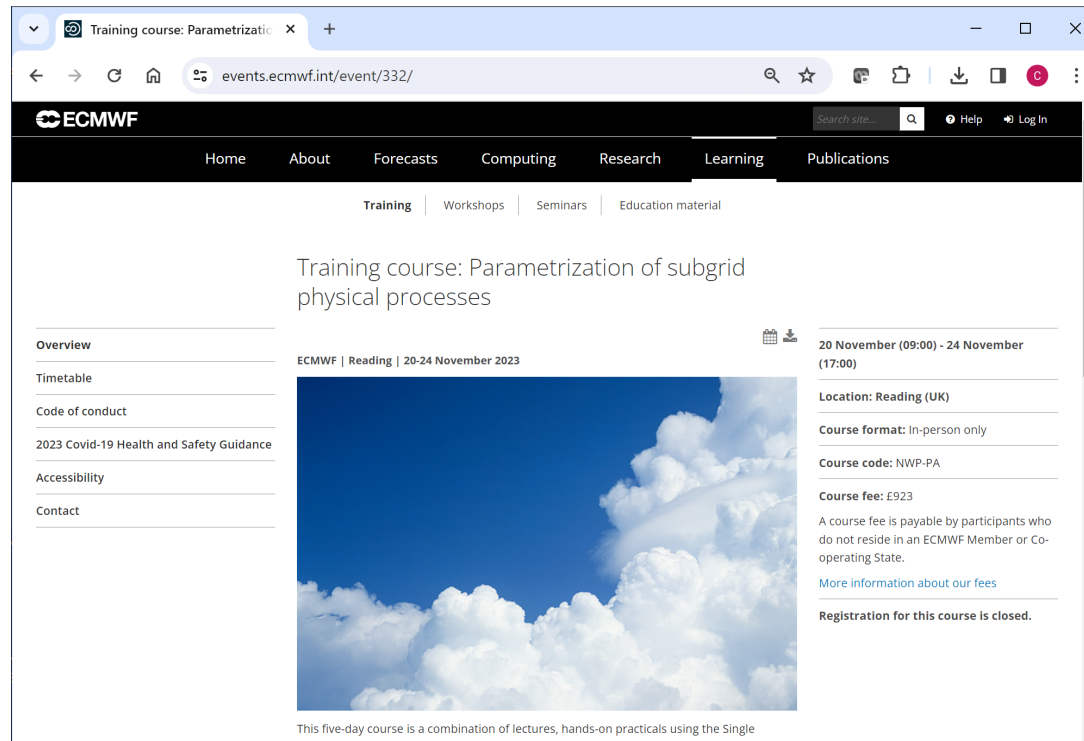
Three sites in UK, Italy and Germany

- Both research institute & 24/7 operational centre
- Established in 1975
- Advanced training = one of ECMWF strategic activities



# NWP training course: Parametrization of subgrid physical processes

- Course webpage: <https://events.ecmwf.int/event/332/>
- ECMWF training: <https://www.ecmwf.int/en/learning>
- eLearning resources <https://learning.ecmwf.int/>



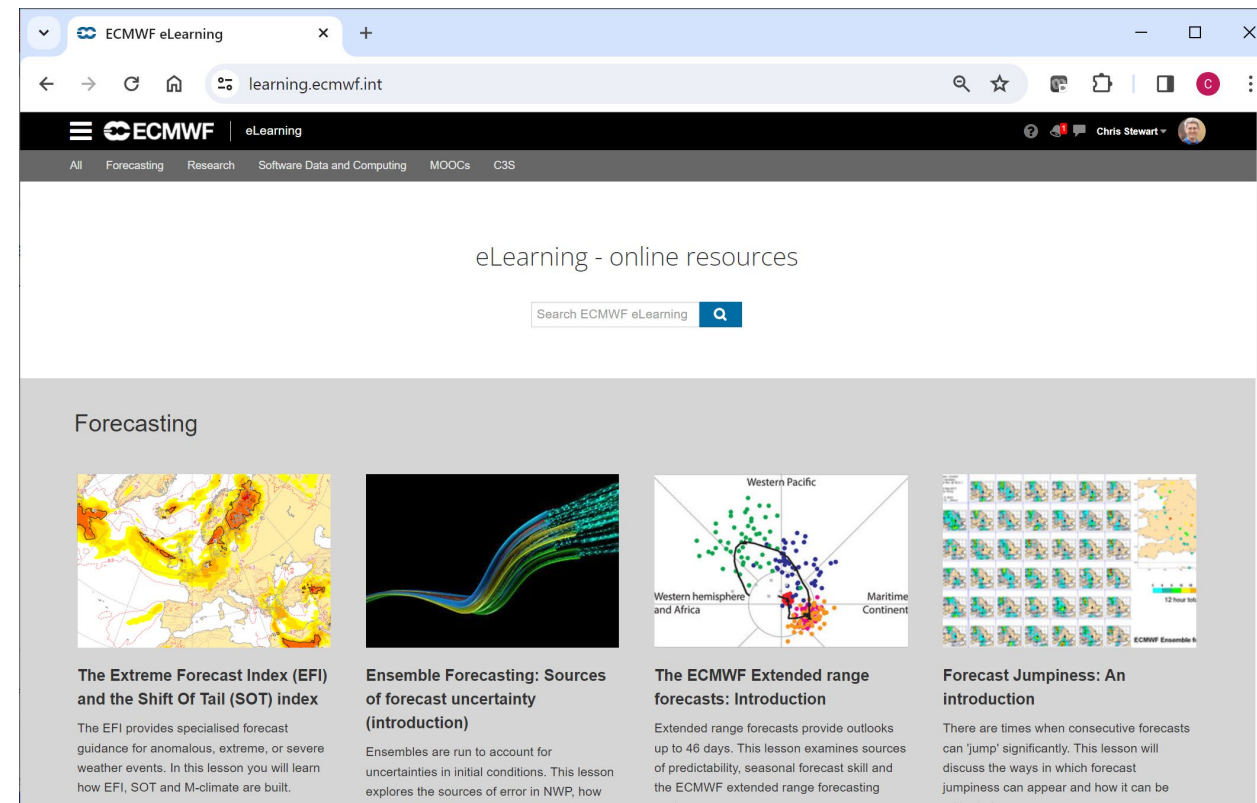
The screenshot shows a web browser window displaying the ECMWF training course page. The URL is [events.ecmwf.int/event/332/](https://events.ecmwf.int/event/332/). The page features the ECMWF logo and navigation menus for Home, About, Forecasts, Computing, Research, Learning, and Publications. The main content area is titled 'Training course: Parametrization of subgrid physical processes' and includes a sidebar with links for Overview, Timetable, Code of conduct, 2023 Covid-19 Health and Safety Guidance, Accessibility, and Contact. The main content area displays the course details: ECMWF | Reading | 20-24 November 2023, 20 November (09:00) - 24 November (17:00), Location: Reading (UK), Course format: In-person only, Course code: NWP-PA, Course fee: £923, and a note that registration for this course is closed. A large image of a blue sky with white clouds is featured in the center.



The certificate is titled 'TRAINING COURSE' and features the ECMWF logo. It certifies that 'XXX' participated in the training course, 'Parametrization of subgrid physical processes', held at ECMWF on '20 - 24 November 2023'. The course consisted of 33 hours of lectures and practical sessions. The certificate is signed by Andrew Brown, Director of Research, on 24 November 2023. The background of the certificate is a blue sky with white clouds. The ECMWF logo is also present in the bottom right corner.

# Learning Management System

- Visit <https://learning.ecmwf.int/> (can login with ECMWF account, then we add you to course)
- Select your name (top right), then “My courses”, then “Parametrization of subgrid physical processes”
- Forum:
  - Introduce yourself
  - Ask questions
  - Start discussion
- Course info, posters, choose your dinner menu.
- E-learning modules (optional, pre-course):
  - Intro to parametrization of sub-grid physical processes
  - Cloud & precipitation parametrization 1: Overview & warm-phase microphysics
  - Land surface: Introduction to cold processes
  - Convection 1: Convection in the context of large-scale circulation



# General Housekeeping

## Access to Centre

- Please sign in/out each day at reception

## Personal belongings

- Do not leave any personal belongings at ECMWF outside office hours.
- We recommend that you do not leave valuables unattended in the classroom or any other part of the building.
- ECMWF will not take any responsibility for items lost at the premises.

## Smoking

- Smoking is not allowed inside the building. Please ask at Reception Desk and you will be directed to the outside smoking area.

## Enquiries

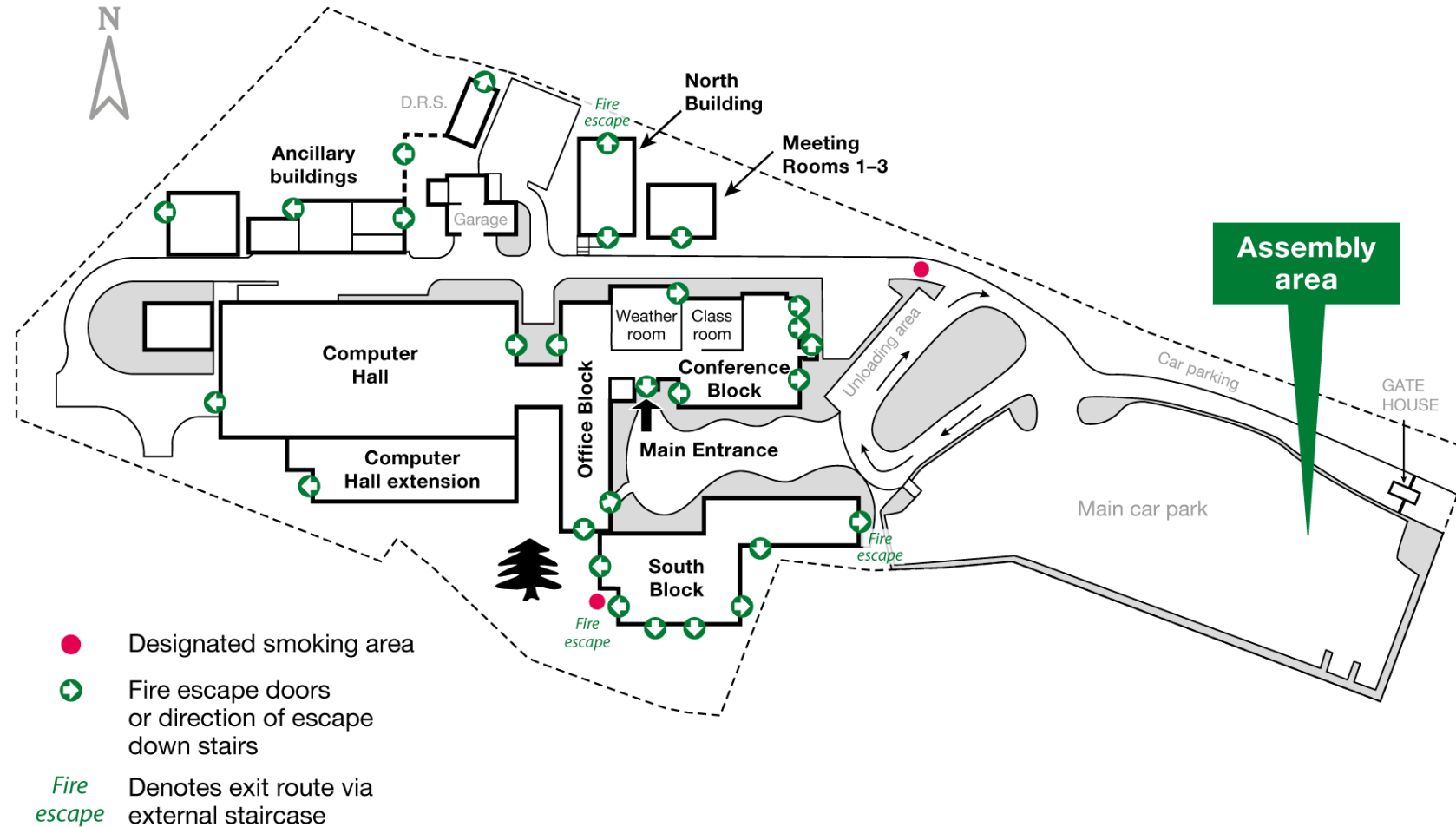
- If you have any questions, please contact the Reception Desk who will liaise with the course organisers.

## Make the most of the training!

- Please don't check emails on the computers, or on other devices 😊
- There are no stupid questions!

# General Housekeeping

## Fire Escapes and Assembly Area



# Restaurant

- The restaurant provides the following daily services:
  - Light breakfast from 08:00
  - Lunch: hot counter choices, salads, sandwiches, soup and desserts.
- Please speak to the restaurant staff if you have any special dietary requirements.
- Coffee/tea will be supplied during the breaks as specified on the programme.



	Monday 20 Nov	Tuesday 21 Nov	Wednesday 22 Nov	Thursday 23 Nov	Friday 24 Nov
09:15-10:15	Welcome, course overview <b>Andy Brown, Sophie Marsden</b> 09:30 Introductions <b>Course Participants &amp; Lecturers</b>	Land surface (1) introduction <b>Gianpaolo Balsamo</b>	Boundary layer (2) <b>Annelize van Niekerk</b>	Clouds (3) <b>Richard Forbes</b>	Parametrization and Data Assimilation (1) <b>Philippe Lopez</b>
10:15-10:40	<b>Group photo</b> <i>Coffee break</i>				
10:40-11:40	Introduction to parametrization <b>Richard Forbes</b>	Boundary layer (1) <b>Annelize van Niekerk</b>	Convection (2) <b>Peter Bechtold</b>	Convection (3) <b>Peter Bechtold and Tobias Becker</b>	Parametrization and Data Assimilation (2) <b>Philippe Lopez</b>
11:40-11:50	<i>Comfort break</i>				
11:50-12:50	Convection (1) <b>Peter Bechtold</b>	Radiation (2) <b>Robin Hogan</b>	Land surface (2) – warm processes <b>Souhail Boussetta</b>	Boundary layer (3) <b>Annelize van Niekerk</b>	Parametrization of sub- grid orography and GWD <b>Annelize van Niekerk</b>
12:50-14:00	<i>Lunch break</i>				
14:00-15:00	Radiation (1) <b>Robin Hogan</b>	Radiation (3) <b>Mark Fielding</b>	Clouds (2) <b>Richard Forbes</b>	Land surface (3) – cold processes <b>Gabriele Arduini</b>	Model evaluation: Clouds and boundary layer <b>Richard Forbes</b>
15:00-15:20	<i>Coffee break</i>				
15:20-17:30	(15:20-16:20) Clouds (1) <b>Richard Forbes</b>	Radiation ( <u>ecRad</u> ) exercises ( <u>Jupyter</u> Notebook) <b>Robin Hogan, Mark Fielding</b>	Moist processes exercises <b>Richard Forbes, Peter Bechtold</b>	Land surface exercises <b>Gabriele Arduini, Gianpaolo Balsamo, Souhail Boussetta</b>	Course wrap-up Finish 16:00

Evening: 16:30 Poster Session / Ice Breaker

**Icebreaker**



EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS

18:00 Self-funded Dinner

Shinfield Arms

**Social dinner:**

**Shinfield Arms Pub.**