INTRODUCTION TO METEOROLOGY FOR AIR QUALITY

ONLINE COURSE: 11, 12, 18, 19 NOVEMBER 2020

COURSE OVERVIEW

An understanding of meteorology is essential for air quality practitioners. This course will outline key meteorological concepts and apply them to air quality applications. You will use information from this course to inform decisions for siting air quality monitoring stations, choosing representative data for air quality modelling, preparation of model input files and undertaking meteorological modelling. As an air quality expert, you need to know the impact of terrain, inversions, boundary layer height, proximity to water etc. on the dispersion, dilution and transport of pollutants. This course covers these topics and more in four 2-hour webinars in November 2020.

Standard registration available to 30 October 2020.

PRESENTER

Dr Elizabeth Somervell. Air Quality Scientist, NIWA

Dr. Somervell holds a PhD in urban air quality modelling from the University of Hertfordshire and an MSc in Environmental Diagnosis from Imperial College, London. She has specialist skills in meteorological and air quality modelling, with experience of regional scale (UM, CMAQ) and local scale (CalPuff, Calmet, AusPlume) models.

Since joining NIWA eight years ago, Elizabeth has been involved in a range of air quality projects, including the Roadside Project, Auckland CBD's PENAP campaign and Resilient Urban Futures. She has worked with a wide range of stakeholders including Councils (Auckland, Greater Wellington, Hawkes Bay, Taranaki, Nelson, Marlborough, Southland and Otago), government agencies (NZTA) and academic institutions (University of Auckland, Canterbury, Otago and Massey). She has led monitoring campaigns in the Marlborough District, produced guidelines for permissible activity limits for industrial boilers, advised on the impacts of rural burning and been heavily involved in NIWA's vehicle emissions and woodburner emissions research.

Elizabeth sits on the New Zealand branch committee of CASANZ and is on the editorial team of the CASANZ journal, Air Quality and Climate Change.

COURSE FORMAT

The course will be presented in four, 2 hour sessions using Zoom. The sessions have been designed to be interactive including discussion, optional homework and case studies. Participants that miss a live session can catch up using the recording of the event. The recording will not be available for non-participants to purchase.

COURSE MATERIALS

Course participants will receive an electronic copy of the course workbook and course certificate. The session recording will also be available for course participants to watch for a limited time following the event.

CAQP

The course attracts 8.5 Certified Air Quality Professional (CAQP) continuing professional development (CPD) points.

CASANZ
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COURSE PROGRAM

Session 1: Wednesday 11 November 2020, 1 pm to 3 pm AEDT

Session 1 Topics	• Introduction • Global scale circulation • Regional/synoptic scale circulation
What will be covered?	• This session will inform your understanding of the climate in Australia and New Zealand including the regional El Niño Southern Oscillation phenomenon. • Key meteorology concepts will be introduced.
When do I need to know this?	• Selecting representative years for modelling assessments.

Session 2: Thursday 12 November 2020, 1 pm to 3 pm AEDT

Session 2 Topics	• Mesoscale and local scale meteorology • In-depth: boundary layer parameterisation
What will be covered?	• Description of landform features which impact mesoscale meteorology including thermo-topographic flow and land/sea interactions • Everything you need to know about the boundary layer: turbulence, roughness height and parameters to describe stability
When do I need to know this?	• When siting meteorological monitoring stations, or interpreting results from an existing station. • The session will inform your understanding of the fate and transport of air pollution sources impacted by geographical features. • The in-depth section provides the theory for parameters used in model met files.

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Session 3: Wednesday 18 November 2020, 1 pm to 3 pm AEDT

Session 3 Topics	• Microscale meteorology • In-depth: vertical structure and stability
What will be covered?	• The processes and conditions which impact the vertical structure of the atmosphere.
When do I need to know this?	• This session will help you identify inversion conditions and understand the parameters used to calculate mixing height.

Session 4: Thursday 19 November 2020, 1 pm to 3 pm AEDT

Session 4 Topics	• Plume behaviour • Meteorological data for air quality modelling
What will be covered?	• This session connects meteorology concepts to plume behaviour • Sources of data for model met files. • Meteorological monitoring concepts. • **NOTE: This course does not cover preparation of model met files as they are model specific and presented comprehensively in CASANZ air quality modelling courses.**
When do I need to know this?	• This session will enable you to evaluate and describe the impact of meteorology on air quality for particular scenarios. • Identify meteorological data sources. • Understand the key requirements for meteorological monitoring.

PRICING

Standard Registration – available to 30 October 2020

- Member: AU$730
- Non-member: AU$940
- Student / retiree: AU$370

Late Registration – after 30 October 2020

- Member: AU$830
- Non-member: AU$1,040
- Student / retiree: AU$470

DISCOUNTS

Only one discount type is applicable per registration, the following discounts are available:

- Multiple registration discount: three or more registrations from the same organisation receive a 20% discount. Apply the coupon code Multi20 at the checkout.
- Government employee discount: 10% discount on applicable member rate is available for all government employees who are CASANZ members. Apply the coupon code Government at the checkout.

REGISTRATION

Registration is via the CASANZ website: www.casanz.org.au

ENQUIRIES

Please contact Jacinda Shen, Training Manager for all enquiries relating to this course: jacinda@casanz.org.au