

# Workshop on drag processes and their links to large-scale circulation



12-15 September 2016

## Programme

Monday 12 September		
12:15-13:00	<b>Registration</b>	<b>Weather Room</b>
13:00-13:15	Opening	Anton Beljaars (ECMWF)
13:15-14:00	The WGNE Drag Project: Importance of and uncertainties in parametrizations of surface drag and momentum exchanges in weather and climate models	Ayrton Zadra (Environment Canada) / Irina Sandu (ECMWF)
	<b>Session 1: Underlying processes and their representation in models</b>	<b>Chair: Ted Shepherd</b>
14:00-15:00	Orographic drag parametrization - history and issues	Norman McFarlane (University of Victoria)
15:00-15:30	<b>Coffee break</b>	
15:30-16:00	Some orographic effects on the large-scale circulation	François Lott (LMD)
16:00-16:30	From 1D to 4D: Towards a gravity-wave parameterization for NWP and climate models beyond the wave-dissipation paradigm	Ulrich Achatz (University of Frankfurt)
16:30-17:00	Trapped lee waves: a currently neglected source of low-level orographic drag	Miguel Teixeira (University of Reading)
17:00-17:30	Poster introduction	
17:30	<b>Drinks reception and posters</b>	
Tuesday 13 September		
	<b>Session 2: Constraining drag processes through observations, reanalysis and fine-scale modelling</b>	<b>Chair: Andreas Dörnbrack</b>
09:00-09:30	On satellite scatterometer winds and how they compare with NWP model winds	Ad Stoffelen (KNMI)
09:30-10:00	Wind turning in the boundary layer	Jenny Lindvall (MISU)

10:00- 10:30	Mountain wave attenuation in the stratosphere: a comparison between parameterizations, GW resolving simulations, and observations over New Zealand, the Andes, and the Himalayas	Christopher Kruse (Yale)
10:30-11:00	<i>Coffee break</i>	
11:00-11:30	Climate model wind stress biases in the northern subtropics from a momentum budget perspective	Isla Simpson (NCAR)
11:30-12:00	Diagnosing errors in the momentum budget in NWP	Mark Rodwell (ECMWF)
<b>Session 2: Continued</b>		<b>Chair: Felix Pithan</b>
12:00-12:30	Using ICON-LES to constrain drag in global simulations	Martin Köhler (DWD)
12:30-13:00	Evaluation of mountain drag schemes using twin regional simulations	Stephen Garner (GFDL)
13:00-14:00	<i>Lunch break</i>	
14:00-14:30	Using high resolution models to improve drag parametrization: the greyzone in orographic drag	Simon Vosper (UKMO)
<b>Session 3: Impact of uncertainty associated with drag in NWP and climate models</b>		<b>Chair: Julio Bacmeister</b>
14:30-15:00	Sensitivity of resolved and parametrized surface drag to changes in resolution and parametrization	Annelize van Niekerk (University of Reading)
15:00-15:30	Experience in creating orography ancillary files	Nils Wedi (ECMWF)
15:30-16:00	<i>Coffee break</i>	
<b>Session 3: Continued</b>		<b>Chair: Gunilla Svensson</b>
16:00-16:30	A comparison of parametrized momentum tendencies in global and regional models at Météo-France	François Bouyssel (Météo-France)
16:30-17:00	Advancements in Global Modelling at NCEP: Current and future plans	Vijay Tallapragada (NOAA/NCEP)
17:00-17:30	Recent developments in orographic drag parametrizations for CAM	Julio Bacmeister (NCAR)
17:30-18:00	Effect of parametrized drag in climate models	Felix Pithan (AWI)

### Wednesday 14 September

<b>Session 3: Continued</b>		<b>Chair: Ayrton Zadra</b>
09:00-09:30	The impact of orographic wave drag on the NAM response to greenhouse gas forcing – a cautionary tale	John Scinocca (CCCma)
09:30-10:00	Effect of drag from small islands in the Southern Ocean on the Southern Hemisphere atmospheric circulation	Chaim Garfinkel (Hebrew University)
10:00-10:30	Small-scale orographic gravity wave drag in stable boundary layers and its impacts in synoptic systems and near surface meteorology	Gert-Jan Steeneveld (University of Wageningen)
10:30-11:00	<i>Coffee Break</i>	
<b>Session 4: Impacts of oceanic surface drag</b>		<b>Chair: Anton Beljaars</b>
11:00-11:30	GEOS-5 NWP experience with increased/decreased surface drag	Nathan Arnold (NASA/GMAO)

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11:30-12:00	Boundary layer dynamics control on the air-sea flux and SST in the tropics	Frédéric Hourdin (LMD)
12:00-12:30	Zonal-mean circulation response to reduced air-sea momentum roughness	Inna Polichtchouk (University of Reading)
12:30-13:00	Consistent jet shifts in idealised climate models	Maarten Ambaum (University of Reading)
13:00-14:00	<i>Lunch break</i>	
14:00-18:00	Working groups	
19:30	<i>Dinner at Côte Restaurant</i>	

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#### Thursday 15 September

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09:15-13:00	Working groups	
13:00-14:00	<i>Lunch break</i>	
14:00-17:00	Plenary – discussion of working groups conclusions	

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