SPARC 5th General Assembly





12th – 17th January 2014 Queenstown, New Zealand

Handbook





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Welcome

Dear Delegates. Welcome to the 5th SPARC General Assembly (GA) here in Queenstown. We especially welcome those who are attending a SPARC GA for the first time, and those from the tropospheric research community who may not have previously engaged in SPARC research. It has been 6 years now since the last SPARC GA was held in Bologna, having delayed our GA to accommodate the World Climate Research Programme (WCRP) Open Science Conference in October 2011. SPARC General Assemblies are our 'family reunions' where we gather to share our latest research results and our passion for what we do. A lot has happened in the last 6 years and there is a lot to catch up on. SPARC has extended its reach to include those aspects of tropospheric chemistry and dynamics that link to the stratosphere. To reflect that extension, the full name of SPARC has been changed to Stratosphere-troposphere Processes And their Role in Climate, and a new SPARC logo has been designed. The Scientific Organising Committee has put together an excellent programme of speakers and poster presentations and we, the local organising committee, have worked hard to ensure that the logistics for this meeting run as smoothly as possible. If you have any questions regarding any aspects of the meeting, please do not hesitate to speak to one of the local organising committee or to one of the members of the SPARC Project Office. We will all be wearing white shirts displaying the new SPARC logo.

SPARC is increasingly being asked to provide research that directly meets the needs of a community that extends well beyond our traditional academic circles. SPARC will be contributing essential research to the WCRP Grand Challenges and to the Global Framework for Climate Services (GFCS). The Grand Challenges and GFCS provide additional avenues for SPARC scientists to make a tangible contribution to climate protection policy. So, as you enjoy your week in this wonderful part of the world, share your latest research results and learn about the latest findings of your fellow scientists, also keep in mind our obligations to the societies that we serve. Learn about how the value of your research may be taken beyond what is achieved through publications in the literature. Learn about the various activities of SPARC and get involved in these activities. SPARC is a vibrant organisation and the value that you can derive from SPARC will, in large part, be determined by your contribution to SPARC. So have a good week. Talk a lot. Have fun. Learn a lot. You can sleep next week.

The Local Organising Committee

About SPARC



SPARC, one of four core projects of the World Climate Research Programme (WCRP), coordinates international efforts to bring knowledge of the stratosphere to bear on relevant issues in climate variability and prediction. SPARC themes and activities address areas of societal concern such as climate variability and change, ozone, atmospheric chemistry and aerosols and polar processes.

SPARC regularly examines the foci of its research advocacy to ensure that as a community it is producing actionable research that supports the maintenance of a high quality of life for the global population in an environmentally sustainable way.

As explained in the handbook welcome note, over recent years, SPARC has extended its reach to include those aspects of tropospheric chemistry and dynamics that link to the stratosphere. After consultation with the SPARC community, the full name of SPARC has recently been changed to reflect this extension. The decision was made to keep the acronym "SPARC" but to change its meaning to Stratosphere-troposphere Processes And their Role in Climate. A new logo has also been designed and this is being released for the first time at the 5th SPARC GA. This replaces a logo that has served SPARC's identity for more than 20 years.

Our Sponsors

As with previous General Assemblies, thanks to very generous sponsorship we have been able to offer financial assistance to support the attendance of PhD students, early career scientists, and scientists from developing countries or countries with economies in transition.

We would like to acknowledge the following organisations for their support of the 5^{th} SPARC General Assembly:

Platinum:



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World Meteorological Organization Weather • Climate • Water







MOSPHER WATCH





Silver:





Bronze:











FACULTY OF SCIENCE

Conference Organising Committee

(Chair)

Conference Convenor

Greg Bodeker

Local Organising Committee

Greg Bodeker Karin Kreher Stefanie Kremser Emma Scarlet



Scientific Organising Committee

Veronika Eyring (Co-Chair – SOC) Adam Scaife (Co-Chair – SOC) Julie Arblaster David Fahey Jean-Francois Lamarque Michelle Santee Kaoru Sato Paul Young

SPARC International Project Office

Johannes Staehelin (Director) Carolin Arndt Laura Revell Fiona Tummon Anke Witten

The SPARC Office (based in Zürich, Switzerland) is supported by:



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Swiss Confederation

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Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich



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Swiss Confederation

Federal Department of Home Affairs FDHA Federal Office of Meteorology and Climatology MeteoSwiss

Venue Layout



Programme Overview

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	09:00 - 10:00	09:00 - 10:00	09:00 - 10:00	09:00 - 11:00	09:00 - 10:30
	Oral Presentations	Oral Presentations	Oral Presentations	Oral Presentations	Oral Presentations
	10:00 - 10:45	10:00 - 10:45	10:00 - 10:45		
	Poster Summaries	Poster Summaries	Poster Summaries		10:30 - 12:30
	10:45 - 12:00	10:45 - 12:00	10:45 - 12:00		Poster Session D
11:00 - 12:30	Poster Session A	Poster Session B	Poster Session C		and Morning Tea
Registration Open	and Morning Tea	and Morning Tea	and Morning Tea	11:00 - 12:30	
	12:00 - 13:30	12:00 - 13:30	12:00 - 13:00	Poster Session C	
	Lunch	Lunch	Oral Presentations	and Morning Tea	
12:30 – 13:20	Optional lunch session	Optional lunch session		12:30 – 14:00	12:30 – 14:00
Official Opening				Lunch	Lunch
Brief Break					
13:30 - 17:30	13:30 - 15:30	13:30 - 15:30			
	Oral Presentations	Oral Presentations	Free Afternoon	14:00 - 15:30	14:00 - 16:00
Invited keynote				Oral Presentations	Oral Presentations
addresses with					
halftime tea/coffee	15:30 - 17:00	15:30 - 17:00		15:30 - 16:15	
break	Poster Session A	Poster Session B		Poster Summaries	16:00 - 17:30
	and Afternoon Tea	and Afternoon Tea		16.15 17.00	Afternoon Tea &
				Poster Session D	Closing Address
				and Afternoon Tea	0
	17:00 - 18:30	17:00 - 18:30	1	17:00 – Late	
17:30 - 19:30	Oral Presentations	Oral Presentations		Conference Dinner	
Icebreaker				Please be at the Steamer	
				Wharf by 17:45	

Conference Programme

The programme was correct at the time of printing. As changes to the presentations may have since occurred, please refer to the online programme at www.sparc2014.org/programme for the most up to date schedule.

Sunday 12th January

11:00 - 12:30	Registration Open
12:30 - 12:50	Pōwhiri
	Chair: Greg Bodeker and Joan Alexander
12:50 - 13:00	Official Opening by Prof. Jim Metson, Ministry of Business,
	Innovation and Employment Chief Science Advisor
13:00 - 13:20	Greg Bodeker & Joan Alexander – SPARC Co-Chairs
	Welcome and Overview
13:20 - 13:30	BRIEF BREAK
	Chair: Veronika Eyring
13:30 - 14:30	Gerald Meehl – Opening Lecture (Invited)
	IPCC AR5: Projections, Predictions and Progress Since AR4
14:30 - 15:00	Steven Sherwood – Invited Lecture
	Dynamical Cloud Feedback Mechanisms
15:00 - 15:30	Ted Shepherd – Invited Lecture
	Polar Climate Predictability
15:30 - 16:00	BREAK – AFTERNOON TEA
	Chair: Adam Scaife
16:00 - 16:30	Christian Jakob – Invited Lecture
	Long-Standing Errors in Climate Models
16:30 - 17:00	Dian Seidel – Invited Lecture
	Temperature Trends: Our Evolving Understanding
17:00 - 17:30	Robert Sausen – Invited Lecture
	Impact of Aviation on Atmospheric Composition and Climate
17:30 - 19:30	ICEBREAKER

Theme 6 – Emerging and Outstanding Research of Relevance to SPARC

Theme 1- Atmospheric Chemistry, Aerosols and Climate

	Chair: Paul Young (9:00 – 10:45)
09:00 - 10:00	John Pyle – SPARC Lecture
	Atmospheric Halogens: Model simulations of VSLS and long-
	lived ODS
10:00 - 10:45	45 x 1 minute Oral Summaries of Session A Posters
10:45 – 12:00	MORNING TEA leading into POSTER SESSION A
12:00 - 13:30	LUNCH (provided)
12:30 - 13:30	Christian Jakob – Optional Lunchtime Session
	If only I had more time: Reflections on tools and techniques to
	improve your productivity
	Chair: Scott Osprey (13:30 – 15:30)
13:30 – 13:45	Fiona Tummon
	Separating the influences of climate and chemistry on future
	lifetimes of ozone-depleting substances: no indication of much
	shortened lifetimes
13:45 – 14:00	Ulrike Langematz
	Future Arctic Temperature and Ozone: The Role of
	Anthropogenic Composition Changes
14:00 - 14:30	Graeme Stephens – Invited Lecture
44.00 44.45	Cloud/derosol Interactions inferred from Satellite Observations
14:30 - 14:45	Jason English
	Aerosol Size Distributions After Large Volcanic Eruptions Evolve
14.45 15.15	In a complex Manner
14:45 - 15:15	Hauke Schmidt – Invited Lecture
	Stratospheric implications of climate engineering through solar
15.15 15.20	Puan Noolu
15.15 - 15.50	Rydii Neely Recent anthronogonic increases in SQ from Asia have minimal
	impact on stratechoric general
15.20 - 17.00	
15.30 - 17.00	

	Chair: Susann Tegtmeier (17:00 – 18:30)
17:00 - 17:30	William Collins – Invited Lecture
	Near-term Climate Forcing
17:30 – 17:45	Thomas Reichler
	Chemical/dynamical interactions and consequences for climate
17:45 - 18:00	Jessica Neu
	Ozone response to variability in the stratospheric circulation:
	The role of ENSO and the QBO and relationship to long-term
	changes
18:00 - 18:15	James Keeble
	The impact of polar stratospheric ozone loss on southern
	hemisphere stratospheric circulation and surface climate
18:15 - 18:30	Li Chao
	The hiatus in global surface warming over 1998-2011

Tuesday 14th January

Theme 2 - Stratosphere-Troposphere-Ocean Dynamics and Predictability of Regional Climate

	Chair: Julie Arblaster (9:00 – 10:45)	
09:00 - 10:00	Doug Smith – SPARC Lecture	
	Role of the Stratosphere in Seasonal and Decadal prediction	
10:00 - 10:45	45 x 1 minute Oral Summaries of Session A Posters	
10:45 – 12:00	MORNING TEA leading into POSTER SESSION B	
12:00 - 13:30	LUNCH (provided)	
12:30 - 13:30	Optional Lunchtime Session: Kathy Cooper	
	Project Loon: A stratospheric platform for communications and	
	scientific discovery	
Chair: Chaim Garfinkel (13:30 – 15:30)		
13:30 - 13:45	Seok-Woo Son	
	Interannual variation of the Antarctic ozone hole and its	
	implication for seasonal prediction	
13:45 – 14:00	Damian Murphy	
	Inertial Gravity Waves in the Antarctic Stratosphere	
14:00 - 14:30	Tiffany Shaw – Invited Lecture	
	Dynamical coupling between the stratosphere and troposphere	

14:30 - 14:45	Mark Baldwin
	The Stratospheric Plunger
14:45 - 15:15	Ed Gerber – Invited Lecture
	Understanding and Predicting the Brewer-Dobson circulation
15:15 – 15:30	Amy Butler
	Reconsidering the traditional definition for stratospheric
	sudden warmings
15:30 - 17:00	AFTERNOON TEA leading into POSTER SESSION B
	Chair: Jim Renwick (17:00 – 18:30)
17:00 - 17:30	Cecilia Bitz – Invited Lecture
	Fast and slow response of sea ice and the Southern Ocean to
	ozone depletion
17:30 – 17:45	Darryn Waugh
	Changes in the ventilation of the southern oceans due to
	stratospheric ozone depletion
17:45 – 18:00	Kirstin Krüger
	Do Large Tropical Volcanic Eruption influence the SAM?
18:00 - 18:15	Kazuaki Nishii
	Blockings and Upward Planetary-Wave Propagation into the
	Stratosphere
18:15 - 18:30	Alexey Karpecho
	Modeling Tropospheric Impacts of the Arctic Ozone Depletion
	2011

Wednesday 15th January

Theme 3 – Coupling to the mesosphere and upper atmosphere

	Chair: Kaoru Sato (9:00 – 10:45)
09:00 - 09:30	Bernd Funke – Invited Lecture
	Solar Impacts on Climate
09:30 - 10:00	Anne Smith – Invited Lecture
	Dynamical Coupling Between the Middle Atmosphere and
	Lower Thermosphere
10:00 - 10:45	45 x 1 minute Oral Summaries of Session C Posters
10:45 - 12:00	MORNING TEA leading into POSTER SESSION C

	Chair: Simon Alexander (12:00 – 13:00)
12:00 - 12:15	Charles McLandress
	Constraining gravity wave drag parameterizations using a
	chemistry climate model nudged to reanalysis data
12:15 - 12:45	Gloria Manney – Invited Lecture
	Satellite Observations of Extreme Events in the Polar Middle
	Atmosphere
12:45 - 13:00	Robert Vincent
	Studies of Stratospheric Gravity Waves Using Superpressure
	Balloons

Thursday 16th January

Theme 4 – Observational datasets, reanalyses, and attribution studies

	Chair: Adrian McDonald (9:00 – 11:00)
09:00 - 10:00	Karen Rosenlof – SPARC Lecture
	Long-Term Changes in Stratospheric Constituents
10:00 - 10:15	Richard Stolarski
	The Search for Ozone Recovery Using 36 years of SBUV Satellite
	Data
10:15 – 10:30	David Tarasick
	A Re-Evaluated Canadian Ozonesonde Record: Changes in the
	Vertical Distribution of Ozone Over Canada from 1966 to 2012
10:30 - 11:00	Mark Weber – Invited Lecture
	Ozone Trends and Variability in a Changing Climate
11:00 - 12:30	MORNING TEA leading into POSTER SESSION C
12:30 - 14:00	LUNCH (provided)
	Chair: Michelle Santee (14:00 – 16:15)
14:00 - 14:30	Gilbert Compo – Invited Lecture
	Developing the 20th Century Reanalysis version 3 (1850-2013)
14:30 - 14:45	Masatomo Fujiwara
	Global Response to the Major Volcanic Eruptions in 9
	Reanalysis Datasets
14:45 - 15:00	Gabriele Stiller
	The SPARC Water Vapor Assessment II Quality assessment of
	water vapor data records from satellites

15:00 - 15:30	David Karoly – Invited Lecture Detection and Attribution Studies of the Role of the Stratosphere in Recent Climate Changes
15:30 - 16:15	45 x 1 minute Oral Summaries of Session D Posters
15:30 - 17:00	AFTERNOON TEA leading into POSTER SESSION D
17:00 - Late	Conference Dinner Please be at the Steamer Wharf on the Queenstown Lakefront by 17:45, to ensure you do not miss the boat.

Friday 17th January

Theme 5 – Tropical Processes

	Chair: David Fahey (9:00 – 10:30)
09:00 - 09:30	Masakazu Taguchi – Invited Lecture
	Tropical and extratropical connections associated with QBO
	and ENSO
09:30 - 09:45	Ji-Eun Kim
	Benefits of a New Wave Scheme for Trajectory Modeling of
	Stratospheric Water Vapor
09:45 – 10:00	Erik Johansson
	The Cloud Radiative Heating in the Upper Troposphere Lower
	Stratosphere over the Indian Subcontinent
10:00 - 10:30	Andrew Gettelman – Invited Lecture
	Representation of Tropical Clouds, Dehydration and the
	Tropopause Layer in global models
10:30 - 12:30	MORNING TEA leading into POSTER SESSION D
12:30 - 14:00	LUNCH (provided)
	Chair: Marv Geller (14:00 – 16:00)
14:00 - 14:30	Keasava Mohanakumar – Invited Lecture
	The Relationship of the Asian Summer Monsoon to the Tropical
	Upper Troposphere and Lower Stratosphere
14:30 - 14:45	Stephan Fueglistaler
	The relation between water entering the stratosphere and the
	strength of the diabatic residual circulation

14:45 - 15:00	Felix Bunzel
	Long-term changes in the Brewer-Dobson Circulation: The role
	of the residual circulation and mixing
15:00 - 15:30	Bernard Legras – Invited Lecture
	Transport across the TTL
15:30 - 15:45	Robyn Schofield
	Mass Fluxes and Detrainment Rates Over the Maritime
	Continent: Implications for Stratospheric Composition
15:45 - 16:00	Debashis Nath
	Decadal changes in PV intrusion events and its impact on deep
	convection over the tropics from climate change perspective
16:00 - 17:30	AFTERNOON TEA and CLOSING ADDRESS

Poster Schedule

The poster schedule was correct at the time of printing. As changes may have since occurred, please refer to www.sparc2014.org/poster-schedule for the most up to date timetable.

Poster Session A Atmospheric Chemistry, Aerosols and Climate (Theme 1)	
Monday 10: Monday 15:	00 – 12:00 (including poster summaries) 30 – 17:00
First Author (Presenter)	Abstract Title
Akiyoshi	A nudged CTM simulation for chemical constituent distribution during the stratospheric sudden warming observed by SMILES in 2010
Alex	Comparison between upper troposphere/lower stratosphere (UTLS) Ozone in the tropical and subtropical Indian region - Diverse roles of seasonal and wave induced variations
Ambade	Atmospheric particulate matter in hilltop of Dongargarh, Central India
Anet (Peter)	Impact of a potential 21st century "Grand Solar Minimum" on climate and stratospheric ozone
Banan	Comparison of Surface Ozone Concentrations at Two Different Population Density Areas in Malaysian Peninsula
Belter (Seidel)	A Bibliometric Analysis of Climate Engineering Research
Berthet	Effect of the 2009 Sarychev volcano eruption on chemistry of the lower stratosphere: balloon-borne observations and model calculations
Bodeker	A semi-empirical model of the stratosphere in the Antarctic climate system
Bozem	Unaccounted ozone source in the upper troposphere
Brühl	Stratospheric aerosol including volcanoes simulated with the EMAC model: effects on radiation, dynamics and heterogeneous chemistry
Butchart	The Chemistry-Climate Modelling Initiative: Evaluation and preliminary projections from HAdGEM3 simulations

Cameron- Smith	The Impact of Methane Clathrate Emissions on the Earth System
Coulon	What are the drivers of interannual fluctuations of atmospheric methane
Dessler (Rosenlof)	The stratospheric water vapor feedback
Eckman	Enhancing Integrated Earth Observations of the Composition of the Atmosphere: The Role of the CEOS Atmospheric Composition Constellation
Engel	Heterogeneous Formation of Polar Stratospheric Clouds - Nucleation of Ice on Synoptic Scales
Eudimio	Climatology and Trend Estimated of Solar UV Radiation in Cuba on basis of total ozone and cloud cover
Ferraro (Charlton- Perez)	Atmospheric responses to stratospheric aerosol geo-engineering
Forster	Geoengineering with stratospheric SO2 injection to limit Arctic Sea Ice loss
Ghude	Role of Asian Summer Monsoon (ASM) in the transport of trace gases in the UTLS region
Hansen	Analysis of precipitation data from the NIWA-UKCA climate runs
Hasebe	Update on the Soundings of Ozone and Water in the Equatorial Region (SOWER) through the Year 2014
Holmes	Where is the equator? The geography of atmospheric chemistry
Hoyle (Engel)	Heterogeneous Formation of Polar Stratospheric Clouds - Nucleation of Nitric Acid Trihydrate (NAT) in the Arctic Stratosphere
Imai	Mesospheric ozone variation in response to the longest annular solar eclipse in the millennium
Jégou	Volcanic SO2 emissions in the stratosphere from 1979 to 2009
Jaroslawski	50 Years of Measurements of Tropospheric Ozone at Northern Midlatitude Site (51.83°N, 20.78°E) - Belsk, Poland; Dobson Umkehr Data Recalculated by the Neural Networks Method
Jena	OMI based Top-down NOx emission estimates over India
Jiang	Impacts of Model Errors on Global Estimates of CO and CH4 inferred from MOPITT and TES datasets

Kadowaki	Relationship between Ozone Chemical Forcing and Wave Activities for the Period 1990-2011 using the MIROC3.2 nudged CTM
Karpechko	The Link between Springtime Total Ozone and Summer UV Radiation in Northern Hemisphere Extratropics
Lenton (Phipps)	Modulation of Southern Hemisphere climate drivers by large- scale geoengineering
Li	Distribution and variation of biomass burning tracers CO, HCN, and CH3CN in UTLS
Lopez-Comi	Assessment of Short-Lived Unobserved Radicals at Lauder Using a Photochemical Steady-State Single-Column Model
Mann	Whole-atmosphere aerosol microphysics simulations of the Mt. Pinatubo eruption: evaluation of simulated aerosol properties, assessment of radiative effects and uncertainty quantification via Gaussian emulation
Maycock	Quantifying the stratospheric water vapour feedback in climate models
Mbithi	Impact of Land Use Land Cover (LULC) changes on Land Surface Temperature (LST); a case study of Addis Ababa City in Ethiopia
McLandress	Quantifying the radiative impacts of CFCs on past changes in temperature and dynamics in the UTLS using a chemistry-climate model
Meul	Attribution of Ozone Changes: Nonlinear Interactions between Ozone Depleting Substances and Greenhouse Gases
Murphy	Ice Nucleation Processes in Cold Cirrus Clouds
Nakajima	Relationship between PSC types and ozone destruction rate quantified from CALIPSO and MLS data
Neu	Tropospheric Ozone Response to Variability in the Stratospheric Circulation: The Role of ENSO and the QBO and Relationship to Long- Term Changes
Oberländer	Unravelling impact factors for past changes of the Brewer- Dobson Circulation from simulations with the CCM EMAC
Oman (Waugh)	The impact of new estimates of mixing ratio and flux- based halogen scenarios on ozone evolution
Orbe	Seasonal Ventilation of the Stratosphere: Robust Diagnostics from One-Way Flux Distributions
Osprey	The climate response following injection of aerosol into the tropical stratosphere: The role of a well-resolved stratosphere

Park	Global Trends of CHCIF2 (HCFC-22) and CCI3F (CFC-11) estimated from ACE-FTS, HIPPO and WACCM4
Patra	Simulation of major GHGs and ODSs using chemistry-transport model
Pawar	Air ion variation during morning period (06:00-08:00 hours) at rural station Ramanandnagar (17°4'N 74°25'E) India
Pitts	Radiative Forcing of Polar Stratospheric Clouds: Seasonal and Interannual Variability of PSC Optical Depth
Plummer	Impacts of Bromine from Very Short Lived Species on Model Projections of Ozone Recovery
Portmann	Stratospheric water vapor in coupled models: assessing the feedback strength
Rahman	Climate Change Scenario over Bangladesh using by High resolution AGCM
Reichler	Stratosphere-Ocean Coupling
Revell	How will air pollution and climate change impact global tropospheric ozone in the 21st century?
Rex	Is There a Hole in the Global OH Shield Over the Tropical Western Pacific Warm Pool?
Rex	The SPARC Stratospheric Sulfur and Its Role in Climate (SSiRC) Activity
Ricaud	Chemical Climate Evolution above the Mediterranean Basin
Ricaud	Variability of Tropospheric Methane above the Mediterranean Basin inferred from Satellite and Model Data
Riese	On the relationship between age-of-air changes and changes in residual circulation and eddy mixing
Saha	Observed profiles of aerosol scavenging properties with Lidar system over Pune, India
Sahu	Characteristics of tropospheric ozone and CO variability over an urban site in Southeast Asia
Sakazaki	Diurnal variations in stratospheric O3 and HCl as observed by the Superconducting Submillimeter-Wave Limb-Emission Sounder (SMILES)
Salami	Variability of climate elements in Nigeria over recent 100 years
Schwartz (Santee)	High water vapor and associated signatures from MLS in the mid-latitude summer lowermost stratosphere: Implications for posited ozone destruction

Seidel	Detection of Climate Engineering Activities by the Global Observing System Is Limited by Earth System Variability
Sekiya	ENSO variability and future change of ozone in troposphere and lower stratosphere
Shang	Direct and Indirect Effects of Solar Variations on Stratospheric Ozone and Temperature
Sheng (Peter)	Global Sulfur Budget and Sensitivity Studies of Anthropogenic SO2 Emissions: Results from a Coupled Sulfate Aerosol- Chemistry-Climate-Model
Sheng (Peter)	Impact of Coagulation Efficiency in Simulations of Mt Pinatubo Eruption Using a Coupled Sulfate Aerosol-Chemistry-Climate- Model
Shiotani (Suzuki)	Middle atmospheric sciences using data from the Superconducting Submillimeter-Wave Limb-Emission Sounder (SMILES)
Soden	An Assessment of Stratospheric Radiative Forcings and Feedbacks in CMIP5
Sugita	Lower stratospheric correlation between O3 and HCl as observed by SMILES in the southern high latitudes
Sukhodolov (Peter)	Representation of the solar signal by radiation codes of the ECHAM family
Sukhodolov (Peter)	Validation of the photolysis rate response to the solar irradiance variability
Suzuki	VSLS Bry Estimation from JEM/SMILES BrO Observation
Taneja	Seasonal and Diurnal Variation of Surface Ozone and a Preliminary Analysis of Exceedence of its Critical Levels at a Semiarid Site in India
Tegtmeier	The role of oceanic halogen and sulfur compounds for the middle atmosphere
Thölix (Karpechko)	FinROSE chemistry transport model simulations of the variability and trends of water vapour in the Arctic stratosphere
Toohey (Krueger)	The dynamical response to volcanic aerosol: climate model sensitivity to prescribed volcanic forcing set
von Hobe	Polar Stratospheric Ozone in a Changing Climate: Closing the Knowledge Gaps
Williams (Zeng)	Multi-model assessment of the sensitivity of the tropical upper troposphere ozone towards regional biogenic emissions estimates

Wohltmann (Rex)	How is chlorine activation affected by the composition of Polar Stratospheric Clouds and background aerosol particles?
Woiwode (Oelhaf)	Studies on mesoscale chemical and dynamical structures in the Arctic winter/spring 2010 UTLS region with MIPAS-STR
Woodhouse	Introduction and evaluation of the ACCESS-UKCA chemistry- climate model
Xiang (Patra)	Recent Global Emission Patterns of Refrigerants HCFC-22 and HFC-134a
Zeng	Multi-model assessment of the impact of biogenic emissions on the composition of the troposphere in the Southern Hemisphere
Zeng	Trends and Variability of Ozone in the Southern Hemisphere Middle and High Latitudes between 1997 and 2010
Ziska (Krueger)	Global VSLS Emission Estimates based on in-situ Measurements for the Past and Future

Poster Session B Stratosphere-Troposphere-Ocean Dynamics and Predictability of	
Regional Climate (Theme 2)	
Tuesday	10:00 – 12:00 (including poster summaries)
Tuesday	15:30 - 17:00
First Author (Presenter)	Abstract Title
Albers	Gravity Wave Effects on Polar Vortex Geometry During Split- Type Sudden Stratospheric Warmings
Alexander	Missing Gravity Waves and Southern Hemisphere Wind Biases in Climate Models: What can observations tell us?
Alexander	Sources, variability and wave mean-flow interactions of tropospheric gravity wave activity at Davis, Antarctica (69S, 78E)
Anstey	Relations between tropospheric blocking and the stratospheric polar vortex in an ensemble of climate models
Aralelian (Codron)	Southern Hemisphere Jet Variability in the IPSL GCM at Varving Resolutions
Arblaster	Untangling the role of ozone versus GHGs in SH climate change

Ayarzagüena	The relevance of blocking highs for stratospheric variability in a changing climate
Bal	Influence of Sudden Stratospheric Warmings on the Indian Summer Monsoon
Barodka (Krasouski)	Observational and Modelling Studies of the Short-Term Climate Influences of the Ozone Mechanism
Bushell	Representation of convectively forced gravity waves and their impact on the upper troposphere and stratosphere of the Met Office GCM
Cagnazzo	Role of Stratospheric Dynamics in the Ozone-Carbon connection in the Southern Hemisphere
Calvo (Smith)	Differences in Ozone Recovery and its Climate Impact under different
Charlton- Perez (Roff)	The Stratospheric Network for the Assessment of Predictability (SNAP)
Chen	Solar Cycle Modulation of the ENSO Impact on the Winter Climate of East Asia
Choi	Determining the Date of the Polar-Vortex Breakup in the Stratosphere
Codron	Impact of ozone depletion on Antarctic surface climate
Cohen	Constraints on the Wave Forcing in the Stratosphere: The Illusion of Downward Control
Das	Responsible mechanisms behind the short scale Stratosphere- troposphere exchange associated with cyclonic weather conditions
de la Torre (Schmidt)	Wave activity at ionospheric and tropospheric-stratospheric heights above the Andes Mountains detected from FORMOSAT-3/COSMIC GPS radio occultation data
Dennison	Annular Modes and Stratosphere-Troposphere Coupling in Chemistry- Climate Models
Dethloff	Tropo- and stratospheric response to Arctic sea ice retreat in ERA-Interim data and ECHAM6 simulations
Dinh	Cirrus, transport, and mixing in the tropical upper troposphere
Domeisen	Assessing seasonal predictability from stratospheric variability in a seasonal prediction system
Foust	Quantifying the Uncertainty in Simulated Trends in the Stratospheric Circulation

Garfinkel	Connections between the Spring Breakup of the Southern Hemisphere Polar Vortex, Stationary Waves, and Air-Sea Roughness
Gray	A Lagged Response to the 11-year Solar Cycle in Observed Winter Atlantic / European Weather Patterns
Haase (Hansen)	The Importance of the Stratosphere for Atlantic Climate Variability
Hansen	Quantifying the Effects of Natural and Anthropogenic Factors on the NH Polar Winter Stratosphere
Hardiman	The Interaction Between Stratospheric Sudden Warmings and Ozone
Hitchcock	The deterministic tropospheric response to a zonally- symmetrically induced stratospheric sudden warming
Hoffmann	Stratospheric Gravity Wave Climatologies from AIRS and IASI Observations
Hood	The Surface Climate Response to 11-Yr Solar Forcing: Observational Analyses, Comparisons With GCM Simulations, and Tests of the Stratospheric (UV-Ozone) Forcing Mechanism
Hu	The Boreal Spring Stratospheric Final Warming and Its Interannual and Interdecadal Variability
Hu	Eastward phase-shift of Southern-Hemisphere planetary waves in the lower stratosphere
Hung (Gerber)	An Improved Idealized General Circulation Model for the Study of Stratosphere-Troposphere Coupling and the Seasonal Cycle of Tropical Upwelling
Hurwitz	Extra-Tropical Atmospheric Response to ENSO in the CMIP5 Models
Hurwitz	Modelling the Impacts of HFCs on Climate and Stratospheric Ozone: First Results
Jrrar	Leading modes of variability in Antarctic climate: Covariance of ozone and sea-ice in AO-UMUKCA control integration
Jucker	Importance of the radiative base state for the dynamical variability of the stratosphere
Kohma	Simultaneous Occurrence of Polar Stratospheric Clouds and Upper- tropospheric Clouds Caused by Blocking Anticyclones in the Southern Hemisphere

Kozubek	Long term trends of middle latitude stratospheric winds from NCEP/NCAR
Krueger	Do Large Tropical Volcanic Eruptions influence the SAM?
Kuroda	Modulation of the Southern Annular Mode through UV change -a chemistry climate model simulation-
Lubis (Hansen)	Investigation of Reflective and Absorptive Winters and Their Impact on Ozone Levels in CESM-WACCM
Mahmood (Bushell)	Impact of the representation of the stratosphere on tropospheric weather forecasts
Manzini	Northern winter Climate Change: Uncertainty in CMIP5 projections related to Stratosphere - Troposphere coupling
Maycock	Stratosphere-Troposphere coupling in zonally asymmetric tropospheric basic states
Misios (Mitchell)	Mechanisms mediating the 11-yr solar cycle influence on climate in the CMIP5 historical simulations
Mitchell	The Influence of Stratospheric Vortex Displacements and Splits on Surface Climate
Morgenstern	Recent Antarctic Climate Change and Its Relation to Stratospheric Ozone Depletion and Increases on Long-lived Greenhouse Gases
Murphy	Inertial Gravity Waves in the Antarctic Stratosphere
Oellhaf	Probing the UTLS from 65°S to 80°N with GLORIA
Omrani (Hansen)	Stratosphere key for wintertime atmospheric response to warm Atlantic decadal conditions
Osman	Impacts on SH tropospheric circulation predictability of incrementing stratosphere vertical resolution in climate models
Otsuka (Yoden)	A Numerical Experiment on Formation of Tropopause Inversion Layer Associated with an Explosive Cyclogenesis: Possible Role of Inertia-Gravity Waves
Parimisetty	A Climatological study on LiDAR observations of middle atmospheric
Peevey	An analysis of Double Tropopause formation and its relationship to the Tropopause Inversion Layer during Stratosphere-Troposphere Exchange
Peters	Stratospheric and tropospheric circulation changes in response to a zonally asymmetric ozone field (ERA40) of the boreal stratosphere

Plumb	Using age to diagnose the stratospheric circulation and its trends
Preusse	Characteristic of gravity waves resolved in ECMWF analysis data
Rea	Role of the stratospheric dynamics in the Southern Hemisphere long-term changes
Renwick	Southern Hemisphere circulation variability and Antarctic sea ice
Scaife	Solar Variability Effects on Extratropical Surface Climate
Scott	A new interpretation of the relation between QBO phase and stratospheric sudden warming frequency
Seviour	A practical method to identify stratospheric polar vortex displacement and splitting events
Shaw	On the control of the residual circulation and stratospheric temperatures in the Arctic by planetary wave reflection
Sheshadri	Stratospheric Final Warming Events and their Impact on the Troposphere
Simpson (Hitchcock)	Understanding Climate Model Biases in Southern Hemisphere Mid- latitude Variability
Simpson (Shaw)	Zonal and Seasonal Variations in Future Predictions of the Mid-Latitude Circulation
Sjoberg	The role of the tropopause region in the wave forcing of sudden stratospheric warmings
Stephan	Investigating the stratospheric gravity wave response to storm characteristics over the US using WRF with validation by radar and satellite data
Thiéblemont (Hansen)	The influence of different sensitivity factors on the 11-year solar signal representation in CESM-WACCM
Thiéblemont (Huret)	Variability of tracer transport in spring/summer Arctic stratosphere simulated by CESMWACCM
Vargin	A case study of Major Sudden Stratospheric Warming in January 2013
Vera (Osman)	The multi-scale nature of SAM influence on South America climate
Wang	Characteristics of lower stratospheric gravity waves during stratospheric sudden warmings from ray-tracing experiments and GPS radio occultation data

Watson	How does the quasi-biennial oscillation affect the polar vortex?
Watson	The stratospheric response to applied extratropical torques
Williams (Joshi)	The effect of climate change on transatlantic aviation turbulence in the UTLS region
Xia	SST Forced Stratospheric Warming over Southern- Hemisphere High Latitudes
Yao (Jablonowski)	Idealized Simulations of Sudden Stratospheric Warmings with an Ensemble of Dry GCM Dynamical Cores
Zülicke	Performance of a gravity wave parameterization with moist baroclinic wave life cycle simulations
Zhang	The impact of the tropopause inversion layer on the gravity wave activity
Zhang	Stratospheric Thermodynamics during the Seasonal Transition between Winter and Summer
Zhou	The Characteristics of Wintertime Tropospheric Blocking over Ural- Siberia and Its Implication for East Asia Winter Monsoon

Poster Session C		
Observational datasets, reanalyses, and attribution studies (Theme 4)		
Wednesday	10:00 – 12:00 (including poster summaries)	
Thursday	11:00 – 12:30	

First Author (Presenter)	Abstract Title
Alexander	Tropospheric cloud properties at Davis, Antarctica (69S) and at Hobart, Australia (43S) measured with Rayleigh lidar
Berthet	In situ measurements of stratospheric aerosols from a new light optical aerosol counter with particle characterization capabilities
Bodeker	Science highlights from the GCOS Reference Upper Air Network (GRUAN)
Braathen	Long term changes in the polar vortices
Braesicke (Keeble)	How well can we model polar spring ozone variability in a CCM?
Bumke (Hansen)	Validation of fresh water fluxes in HOAPS and ERA-Interim reanalysis data over sea
Burrows	Observations of vertical profile of Ozone from SCIAMACHY

Covey	The QBO in Satellite Microwave Observations and Climate
Dac	Characteristics of bright-band over two different
Das	tonographies using Micro-Rain radar
Das	Influence of diurnal tides on troponause characteristics over
Dus	Indian tropical and subtropical regions: Results inferred from
	COSMIC and reanalysis data
Davis	The SPARC Reanalysis Intercomparison Project (S-RIP): Initial
	comparisons of water vapour and ozone
Dean	Changes in South Pacific Blocking and the Influence on New
(Renwick)	Zealand and Antarctica
Dhomse	Stratospheric O3 changes during 2001±2010: the small role of
(Mann)	solar flux variations in a CTM and a CCM
Duruisseau	On the accuracy of stratospheric meteorological reanalyses
	using wind measurements at high altitude in the stratosphere
Eckert	Drift-corrected Trends and Periodic Variations in MIPAS
	Ozone Measurements
Fueglistaler	On the consistency of the evolution of dynamics,
	temperatures and tracers in the TTL and lower stratosphere
	from the 1980's to the present in observations
Fujiwara	SPARC Reanalysis Intercomparison Project (S-RIP)
Garfinkel	Connections between the TTL and sea surface temperatures:
	interannual variability and trends
Geller	A Proposed WCRP/SPARC Project on Fine-Scale Atmospheric
Carlan	Structures and Processes
Gerber	Quantifying the Summertime Austral Jet Stream and Hadley
Criessheeh	Cell Response to Stratospheric Ozone and Greenhouse Gases
Griessbach	Detection of volcanic Aerosol with Envisat MIPAS
(Vargin)	the 2011 Ozone Hole in the Arctic
Haberreiter	SOLID - a European EP7 Project towards the First European
(Tourpali)	Comprehensive Solar Irradiance Data Exploitation
Harris	Past Ozone Profile Changes analyzed by statistical modeling
(Staehelin)	of suitable long-term measurements
Hassler	Changes in the Polar Vortex: Effects on Antarctic Total Ozone
	Observations at Various Stations and Antarctic Surface
	Climate Characteristics
Hassler	SI2N Overview Paper - Measurements Or Where Do I Find the
	Perfect Ozone Profile Data?
Hegglin	Highlights of the SPARC Data Initiative: Part I
Hegglin	Solving the stratospheric water vapour entry puzzle

Huret	On the dynamical characterization of the stratosphere using multi- scale analysis of N2O, CH4, O3 and HNO3 high resolution
lgri	Comparison of the Cameroon Weather Synoptic Stations Rainfall Data
Jianying	Spatio-temporal characteristics of convective gravity wave momentum flux derived from HIRDLS and SABER satellites in the stratosphere over Asian Summer Monsoon region
Kasai	SMILES diurnal variation climatology of strato- and mesospheric trace gases: O3, HCl, HNO3, ClO, BrO, HOCl, HO2, and temperature
Khokhaar	Evolution of Atmospheric Sulfur dioxide (SO2) Column Densities over Pakistan during last decade of Pakistan
Kizhathur Narasimhan	A climatological Perspective of Water Vapour at UTLS Region over Different Global Monsoon Regions: Observations Inferred from AURA-MLS and Reanalysis Data
Klekociuk (Alexander)	Quasi-Stationary Rossby Waves in the Southern Extratropics: An Examination of Meteorological Reanalyses and Climate Model Simulations
Kobayashi	Brewer-Dobson circulation diagnosed from JRA-55
Kolonjari	Understanding the Global Distribution of HCFC-22 in the Upper Troposphere and Lower Stratosphere
Kremser	Climate data record of carbonyl sulfide (COS) in the Southern Hemisphere
Krizan	Vertical dependence of breakpoint occurrence at the selected European ozonosonde stations
Kunz	A climatology of potential vorticity filaments and related exchange between the tropics and extratropics in the lower stratosphere
Kyrölä	Ozone time series and trend analysis from SAGE II, OSIRIS and GOMOS measurements
Laeng	Ozone trends from merged SAGE II + MIPAS ozone datasets: impact of the transfer instrument
Legras	Brewer-Dobson circulation in the ERA-Interim: increase or decrease?
Liley	Global Dimming and Brightening in New Zealand
Liley	Stratospheric Aerosol over Lauder, New Zealand
Liu (Zhang)	Vertical ozone variability and decadal trend over Beijing from ozonesonde observation
Livesey	Lagrangian 'Match' chemical loss calculations and related diagnostics for Aura MLS

Long	SPARC Reanalysis Intercomparison Project (S-RIP):
(Fujiwara)	Climatology and Interannual Variability of Dynamical
	Variables
Lossow	Variability and linear changes of stratospheric water vapour
Loyola	Global and regional ozone trends based on satellite
	measurements from the last 16 years
Lucas	A Critical Comparison of Tropical Expansion Metrics
Lucas	What Drives Southern Hemisphere Tropical Expansion?
McDonald	Using trace gas measurements to quantify horizontal and
	vertical motion at the poles
McKenzie	Long Term Changes in UV in New Zealand Due to Ozone
(Liley)	Depletion: Comparison with Variability from Other Causes
	and at Other Places
Metelka	Non-linear Statistical Model of Changes of Total Ozone with
	the Help of Neural Networks. A Case Study: Hradec Kralove,
	Czech Republic, 1961-2010x
Millan Valle	Latest BrO, HO ₂ and HOCI Observations from the EOS
	Microwave Limb Sounder
Min	Multimodel attribution of the Southern Hemisphere Hadley
(Son)	cell widening: Major role of ozone depletion
Mitchell	The Impact of Stratospheric Resolution for Detection and
	Attribution of Atmospheric Temperature Trends
Mitchell	The Morphology of the Polar Vortices on Mars and Earth
	from Atmospheric Reanalyses
Muthama	The role of stratospheric wind divergence and shear in season
	rainfall over Kenya
Neef	Assimilation of Geodetic Monitoring Data as a Dynamical
(Hansen)	Constraint in Atmosphere Models
Neu	High Altitude Airships as a Platform for Atmospheric
	Composition Observations
Neu	The SPARC Data Initiative: Comparison of upper troposphere
	/ lower stratosphere ozone climatologies from limb-viewing
	instruments and the nadir-viewing Tropospheric Emission
	Spectrometer (TES)
Oetjen	Towards a combined IASI/TES record of ozone: validation and
	first results
Penckwitt	Splicing SAGE-II and GOMOS measurements to create a long-
	term stratospheric ozone climate data record
Pendlebury	A comparison of the SPARC Data Initiative and the CMAM30
	datasets
Pervez	Atmospheric Carbonaceous matter in humid sub-tropical
	region of central India: Impact study on meteorology

Pervez	Organic and Elemental carbon emission from Indian religious burning practices
Peter	Balloon-borne match measurements of mid-latitude cirrus clouds
Raffalski	A New Balloon-borne Submillimetre Limb Sounding Radiometer
Rahpoe	Limb ozone profile intercomparison of ozone_cci data products
Reddmann	Evaluating transport in the middle atmosphere using ERA- Interim analyses
Ren	Long-term changes in winter stratospheric circulation in CMIP5 Scenarios Simulated by the Climate System Model FGOALS-s2
Salvador	Study of temperature profiles observed during an unusual depletion of ozone over NDACC Station of Río Gallegos (51° 55'S, 69° 14'W) - Argentina on November 2009
Santee	Observations of Methyl Chloride and Methanol in the Upper Troposphere / Lower Stratosphere from the Aura Microwave Limb Sounder
Sato	Program of the Antarctic Syowa MST/IS Radar (PANSY)
Scherllin- Pirscher	Geopotential Height and Geostrophic Wind from Radio Occultation Data
Schmidt	Temperature variability in the upper troposphere and lower stratosphere observed with GPS radio occultations
Schwaerz	Validation of Thermodynamic Profiles from MIPAS, GOMOS, and Radiosondes against Radio Occultation Reference Datasets
Shiotani (Fujiwara)	Comparison of ozone profiles between Superconducting Submillimeter- Wave Limb-Emission Sounder (SMILES) and worldwide ozonesonde measurements – some issues in ozonesonde measurements
Shrestha	Spatial Patterns of Summer Precipitation around the Himalayas and the Mountainous Western Coast of India and Myanmar Revealed by TRMM
Silva	Uncertainty in Microtops II Measurements of Total Ozone Column and the Cloud Cover
Singh	Role of Planetary Boundary Layer and Cumulus Convection Parameterization Schemes in Mesoscale Simulation of Bay of Bengal Cyclones
Smith	Reanalysis versus reality: a case study of snow on Antarctic sea ice

Son	The Fine-scale Structure of the Global Lapse-Rate Tropopause Derived from COSMIC GPS Radio Occultation Measurements
Staufer	Comparison of ozone concentrations in the UTLS as
(Staehelin)	measured by ozone sondes and commercial airliners
	(MOZAIC)
Steiner	Atmospheric temperature trends from GPS radio occultation
	records
Stone	An Updated Retrieval of Ozone Profile Information from the
	Australian Dobson Observational Network
Suzuki	Diurnal variation of HO ₂ over wide vertical region, from
	stratosphere to thermosphere, observed by SMILES
Tegtmeier	Highlights of the SPARC Data Initiative: Part II
Thomason	The SAGE III's mission aboard the International Space Station
Thomason	Toward standardization of the SAGE-series data products:
	SAGE II 7.0
Tian	Dynamical and Chemical Effects of Quasi-biennial Oscillation
	and Stratospheric Semiannual Oscillation on Tracer Transport
	in the upper Stratosphere
Tully	Trends in Total Column Ozone from Australian and New
	Zealand Dobson Sites
Urban	Study of stratospheric water vapour and ozone time-series
	using data from Odin and other satellites
Vernier	CALIPSO observations of aerosol layers in the Upper
	Troposphere and Lower Stratosphere from Volcanoes, Fires
	and Asian monsoon convection
von Clarmann	MIPAS databases: the current status and future plans
(Stiller)	
Whaley	Using FTIR Measurements of Stratospheric Composition to
	Identify Mid- Latitude Polar Vortex Intrusions Over Toronto
Wild	The Cohesive SBUV and SBUV/2 Climate Data Record (1978-
(Long)	2012) and the Current Status of the Ozone Profile
Wolfram	Impact of polar vortex on ozone profiles in the Atmospheric
	Observatory of South Patagonia, Río Gallegos, Argentina
Worden	Decadal Record of Satellite Carbon Monoxide Observations
Worden	CH ₄ emissions estimates from tropical and subtropical fires
(Jiang)	using Aura TES CH ₄ and Terra MOPITT CO profiles

Poster Session DCoupling to the mesosphere and upper atmosphere (Theme 3) andTropical Processes (Theme 5)Thursday15:30 - 17:00 (including poster summaries)

Friday 10:30 – 17:00 (including poster summar 10:30 – 12:30

First Author (Presenter)	Abstract Title
Ajay Kumar	Response of tropical cyclone NILAM on surface metrological parameters
Andersson	Mesospheric ozone loss caused by energetic electron precipitation
Bancala (Krueger)	How do Major SSWs Develop in Present and Future Climate?
Bunzel	Tropical ascent rates derived from the water vapour tape recorder - a comparison study with SHARP models and observations
Butchart	The response of quasi-biennial oscillation to climate change in HadGEM2-CC
Carminati	Impact of Tropical Land Convection and interplays between Water Vapor, Ice Water Cloud and Temperature in the TTL
Chan	Balance model for equatorial planetary scale dynamics
Chane Ming	Characteristics of Gravity Waves during Tropical Cyclone Events in ECMWF Analyses
Chemel	Sampling unexplored regions of the tropical UTLS: planning for the next major field campaign in the tropical warm pool
Chishtie	A study of cloud occurrences and properties in the UTLS region during summer monsoon seasons using CALIPSO and Cloudsat observations across Pakistan
Eguchi	Downward coupling process through TTL : a case study using a global non-hydrostatic model
Ern (Riese)	Two examples of gravity-wave mean-flow interactions observed from satellite: The QBO and the summertime mesospheric jet
Ette	Effect of cyclone NILAM on atmospheric parameters and characteristics of Inertia Gravity Wave over Hyderabad (17° N, 78.4° E)

Fierli	On the variability and trends of the stratospheric subtropical barrier
Flannaghan	The Potential Impacts of Vertical Mixing on the Tropical Tropopause Layer Temperature Structure
Frey	Modelling of Hector overshooting convection and its implications on water vapour distribution in the TTL and lower stratosphere
Gabriel	Interannual variability of the 3D residual circulation and tracer transport in the stratosphere and mesosphere
Gabriel	Stratospheric and mesospheric wind fields derived from Aura/MLS temperatures and tracer distributions
Geller	Changing ENSO Influences on the QBO
Ghosh	Theory and observation of gravity waves generated from convection
Gong	Systematic Inclination of Tropical Upper-troposphere Clouds Revealed from Satellite Observations and Model Simulations
Gong	Atmospheric Tides in the Low Latitude Thermosphere and Their Response to a Sudden Stratospheric Warming in January 2010
Hermawan	An Application of ARIMA Model in Predicting the Indonesian Rainfall Anomalies When Monsoon and El-Niño Coming Simultaneously
Hirooka	Observed General Circulation Changes up to the Mesopause Level Associated with Sudden Warming Events
Hitchcock	The Impact of Compositional Changes on Radiative Damping Rates in the Stratosphere
Hoor	Interhemispheric Transport in the TTL Observed from HALO during TACTS/ESMVal
Jablonowski	Spontaneous QBO-like Oscillations in Atmospheric Model Dynamical Cores
Kafando	Wave Activity and Spectral Characteristics in the Lower Stratosphere Associated with the West African Monsoon
Kawatani	Weakening stratospheric quasibiennial oscillation and trends in tropical mean upwelling
Khaykin	Dehydration, Hydration and Horizontal Transport in the Tropical UT/LS from Balloon and Satellite Observations

Kim (Son)	Tropical Cold-Point Tropopause: Climatology, Seasonal Cycle, and Intraseasonal Variability Derived from COSMIC GPS Radio Occultation Measurements and CMIP5 models
Kinoshita	A study of the tidal periodicity of mesospheric gravity waves observed with MF radar at Poker Flat, Alaska
Krismer	Seasonal Aspects of the Quasi-Biennial oscillation in the Max Planck Institute Earth System Model and ERA-40
Krismer	The influence of spectral resolution on modeling the Quasi-Biennial Oscillation
Krismer	Wave forcing of the Quasi-Biennial Oscillation
Krueger	Sulfur and Halogen Release from Large Tropical Volcanic Eruptions to the Stratosphere - a Potential Ozone Hole Scenario
Kuribayashi	Cly chemistry in the mesosphere observed by SMILES
Luo	In situ measurements of UTLS humidity: Effects of small- scale temperature fluctuations and of data quality
Mandal	Simulation of Indian Summer Monsoon and its intra- seasonal variability using RegCM4
Masuda (Okamoto)	A study of anomalous potential vorticity distribution frequently observed in the boreal winter mesosphere based on a gravity-wave resolving GCM simulation
McDonald	Patterns of Southern Hemisphere Climate Change and their Relationships
Mohammad	Equatorial wave activity during 2007 over Gadanki, a tropical station
Mohr (Krueger)	Present and Future changes of the TTL using a Lagrangian approach
Naja	Vertical profiling of ozone, RH and temperature from the central Himalayas: Influence of dynamical processes and biomass burning
Nayak	Simulation of Inter-annual and Inter-seasonal Variations of Tropospheric Water Vapour over south Asia using RegCM4
Nishimoto	A diagnostic tool for the temperature structure around the tropical tropopause
Ortland (unknown)	A model study of short-term tidal variability during the Sudden Stratospheric Warming of 2008-2009
Ortland (unknown)	The residual mean circulation in the tropical tropopause layer driven by tropical waves

Osprey	An assessment of tropical stratosphere variability within past and present global climate models
Pérot	Odin/SMR's Contribution to a Better Understanding of Energetic Particle Precipitation Indirect Effect
Pendlebury	Interaction of the quasi 2-day wave and tides in the CMAM30 dataset
Peter	Upper Tropospheric Humidity, Supersaturation and Cirrus Formation
Peters	Ground-based observation of the long-term variability in the extra- tropical mesosphere and the inter-annual coupling with the stratosphere/ troposphere
Pokhrel	Evaporation-precipitation variability over Indian Ocean and its assessment in NCEP Climate Forecast System (CFSv2)
Pommereau	Evidence of much more convective troposphere to stratosphere transport in the Southern than in the Northern tropics and tentative explanation
Pommrich (Mueller)	Carbon monoxide as a tracer for tropical troposphere to stratosphere transport in the Chemical Lagrangian Model of the Stratosphere (CLaMS)
Portafaix	Influence of isentropic transport on ozone profiles in the lower tropical stratosphere
Quan	TIMED/SABER observations of lower mesospheric inversion layers at low and middle latitudes
Radley	Cloud and radiative balance changes in response to ENSO in observations and models
Ramkumar	Hemispheres dynamical coupling through diffusion of potential vorticity and breaking of subtropical jet by dissipating Rossby waves
Ramsay	The Effects of Imposed Stratospheric Cooling on the Maximum Intensity of Tropical Cyclones in Axisymmetric Radiative-Convective Equilibrium
Rao	Climate impact of Asian Monsoon Convection
Rao	Deep cloud structure of the Mesoscale Convective Systems (MCS): Impact of MCS on the Atmospheric Boundary Layer (ABL) and the Tropical Tropopause Layer (TTL)
Rao	Madden - Julian Oscillations over a Tropical Indian Station Using Radar and ERA data of winds

Reddmann	Evaluating NOy transport from the lower thermosphere in the KASIMA model
Ren	Evidence of ENSO's delayed effect in winter stratosphere
Rollins	Observational Evidence for Incomplete Dehydration in the TTL
Sakazaki	Non-migrating tides appearing in a high vertical resolution GCM
Scaife	Predictability of the Quasi-Biennial Oscillation
Schirber	Effects of a Convection-based Gravity Wave Parameterization in a General Circulation Model: The Link from Variable Wave Sources to the QBO
Schlager	In situ Measurements in the Outflow of the Asian Summer Monsoon during the HALO ESMVal Campaign
Schmidt	Long-term observations of gravity wave activity in the lower stratosphere with GPS radio occultation data
Seppälä	Geomagnetic activity signatures in wintertime stratosphere
Sharma	Middle Atmospheric Dynamics and Structure in Sub- tropical and Tropical Regions: Possible Interconnections
Sharma	Stratospheric Temperature Characteristics and its Association with Ozone over a High Altitude Location
Sheese	The possible effects of nitric oxide variations in the upper atmosphere on temperatures in the lower atmosphere
Sinnhuber	Solar variability impacts on the middle atmosphere - investigations using satellite observations and global models
Smith	A Quantitative Measure of Polar Vortex Strength Using the Function M
Smith (Eckermann)	The Deep-Propagating Gravity-Wave Experiment (DEEPWAVE) over New Zealand
Son	Formation of the tropical cold-point tropopause by baroclinic eddies in a dynamic-core GCM
Stiller	Can the MIPAS-observed pattern of mean age of air trends be explained by shifts of the subtropical mixing barriers?
Stroh	The StratoClim Aircraft Field Campaign: Studying Processes Relevant to the Climate Impact of the Asian Monsoon Circulation

Sunkara	Variability of the gravity wave forcing from troposphere to mesosphere: By momentum flux estimation	
Tissier	Convective sources and transport in the TTL	
Tweedy (Limpasuvan)	Nighttime Secondary Ozone Layer during Major Stratospheric Sudden Warmings in Specified-Dynamics WACCM	
Ueyama	Insights on TTL dehydration mechanisms from microphysical modelling of aircraft observations	
Vazhathottat hil	A possible UT/LS coupling during dry and wet years of Indian summer monsoon circulation	
Verronen	Comparison of Modeled and Observed Effects of Radiation Belt Electron Precipitation on Mesospheric Hydroxyl and Ozone	
von Hobe	Sulfur transport into and through the tropical gateway to the middle stratosphere	
Wang	Recent UTLS Variability and Potential Climate Impacts	
Watanabe	Vertical resolution dependence of gravity wave momentum flux	
Wright	Differences in Reanalysis Estimates of Diabatic Heating in the Tropical UTLS and Implications for Cross-Tropopause Transport	
Xu	Evidence for non-migrating tides produced by the interaction between tides and stationary planetary waves in the middle atmosphere	
Yuan	FPI observations of nighttime mesospheric and thermospheric winds in China and their comparisons with HWM07	
Zülicke	Do split stratospheric vortices reach higher?	
Zebaze	Interaction between moist Kelvin waves and synoptic variability of precipitation over Congo basin	

General Information

The following information has been provided to make your time at the SPARC General Assembly as pleasant as possible. If you require further assistance, please call into the information desk and we will do our very best to help you.

Abstracts

We are not providing a printed version of the abstracts. All abstracts are on the USB Drive in your registration pack, ordered by surname of the first author.

Catering

All morning and afternoon teas, and lunches are included in your registration fee. The morning and afternoon teas will be served on the same floor as the presentations, and the lunches will be served buffet style in the restaurant downstairs.

If you have any specific dietary requests and if you have not already made this known to the organising committee, please see the team at the information desk as soon as possible.

Carbon Offsetting

Delegates at the 5th SPARC GA have been given the opportunity to contribute to an offsets programme to reduce the impact of carbon emissions associated with attendee travel to and from New Zealand. We are very grateful for the support of Air New Zealand and United Bank of Carbon (UBoC), who are matching contributions made by the delegates.

If you would still like to contribute to the carbon offsetting initiative, we encourage you to visit the GA website: www.sparc2014.org/sustainability

Conference Dinner

The conference dinner (Thursday night) will be held at Walter Peak Station, on the shores of Lake Wakatipu. We are crossing the lake on the historic TSS Earnslaw steamship. Please be at the Steamer Wharf on the Queenstown Lakefront by **5.45pm** to ensure the boat does not leave without you. The dress code for the conference dinner is smart casual and flat shoes are recommended.

Doctors and Medical Centres

Emergency - Dial 111 for an Ambulance (and the Police or Fire department)

After Hours Medical Services

Queenstown Medical Centre, 9 Isle Street, Queenstown	+64 3 441 0500	
Lakes District Hospital, 20 Douglas Street, Frankton	+64 3 441 0015	
Remarkables Park Surgery, Frankton	+64 3 450 9199	
After Hours Pharmacies		
Unichem Wilkinson's Pharmacy, 4 The Mall, Queenstown	+64 3 442 7313	
Queenstown Pharmacy, Isle Street, Queenstown	+64 3 441 0590	

Emergency Information

In the unlikely event of an emergency, please leave the building by the closest marked exit and follow the instructions of Hotel staff.

To contact the NZ Emergency Services (Ambulance, Fire or Police), **Dial 111** from any public or private telephone or mobile phone in New Zealand.

Goods and Services Tax (GST)

Good and Services Tax in New Zealand are subject at a 15% tax (GST). This tax is usually included in the price of goods and service, and if not, is clearly stated. This tax **cannot** be claimed back by visitors, when leaving the country.

Information Desk

The information desk will be located on the same floor as the oral and poster presentations, and will be open during the following hours:

Sunday	11:00 – 17:30	Wednesday	08:30 - 13:00
Monday	08:00 - 18:30	Thursday	08:30 - 17:00
Tuesday	08:30 - 18:30	Friday	08:30 - 17:30

Internet

Complimentary wireless internet is available in the conference areas. There will be a limited allocation per day, and therefore this is intended for accessing your **emails only**. Please refrain from downloading large files. A code to access this internet will be advertised at the beginning of each oral presentation session, and the code will also be available from the information desk. If you require additional internet access, you are able to purchase your own allocation for your personal use. Please see the hotel staff to organise this.

Mobile Phones

Out of respect to the speakers and other delegates, please ensure your mobile phone is on silent mode or switched off during all oral presentations.

Name Tags

All delegates will be provided with a name tag on a lanyard. This must be worn during all timetabled parts of the conference including meal breaks. This is required for security and logistical reasons. Please ensure you also bring this with you to the conference dinner (Thursday night). You will not be required to wear it for the duration of the evening, but this will greatly assist us with the boarding process.

Public Transport

Many attractions and accommodation options can be reached easily on foot from the conference venue. However, if you require public transport, the following options are available:

Queenstown Taxis Ph: 03 450 3000

Connectabus services all major hotels and motels every 20 minutes. Cash fares are available for \$3.00-\$8.00, or you can purchase a Seven Day Pass for \$35.00 (from the bus driver) which will give you 7 days unlimited travel around Queenstown.

Smoking

The Millennium Hotel Queenstown is a smoke free facility. Smoking is permitted outside on the footpath at the front of the building.

Speaker Preparation

If you have an oral presentation, please take your slideshow presentation to the AV desk in the plenary room at least **six hours** before your scheduled talk. The AV technical assistant will be available to upload your presentation during breaks. Specific times will be posted by the AV desk.

Wednesday Afternoon

If you are having difficulty planning activities for Wednesday afternoon, please feel welcome to ask for assistance at the Information Desk.