

The 1st KORUS-AQ Science Team Meeting (Data Workshop) Agenda

Day 1 Monday 27 Feb

9:00-10:45 Session 1 : Intro and overview talks

11:00-12:45 Session 2 : Remote Sensing

12:45-14:15 Lunch

14:15-16:00 Session 3 : Remote Sensing (cont.)

16:15-18:00 Session 4: Poster 1

Welcome reception Hosted by President of NIER

Day 2 Tuesday 28 Feb

9:00-10:45 Session 1: Aerosol formation and characterization

11:00-13:00 Session 2: Aerosol formation and characterization (const.)

13:00-14:30 Lunch

14:30-16:00 Session 3: Ozone chemistry

16:15-18:00 Session 4: Poster 2

Day 3 Wednesday 1 March

9:00-10:30 Session 1: Ozone chemistry (const.)

10:30-12:15 Session 2: Emissions

Lunch and tour

Day 4 Thursday 2 March

9:00-10:45 Session 1: Emissions (cont.) and Modeling

11:00-12:45 Discussion 1 :RSSR Science 1, 4, 5 revisited

12:45-14:15 Lunch

14:15-16:00 Discussion 2 : RSSR Science 2, 3 revisited

16:15-18:00 Discussion 3: Analysis, Collaborations, and Gaps

Day 5 Friday 3 March

9:00-10:30 Discussion Session Summaries

11:00-12:30 Wrap-Up and Future Plans (Meetings and Publications)

12:30 Lunch

Lunch and Adjourn

A. Oral Presentations

Day 1 Monday 27 Feb

Session 1 : Intro and overview talks (9:00-10:45)		
Time	Title	Presenter
9:00-9:15	Welcome	Jin-Won Park Chun-Ho Cho Barry Lefer
9:15-9:30	Charge to the Science Team	Jim Crawford Lim-Seok Chang
9:30-9:45	Meteorology Influencing Pollution Regimes and Transport during KORUS-AQ	Dave Peterson Sang-Ok Han
9:45-10:00	KORUS-AQ Observational Overview	Gangwoong Lee Jim Crawford
10:00-10:15	KORUS-AQ Modeling Resources	Rokjin Park Louisa Emmons
10:15-10:30	Ground-, Airborne-, and Satellite-based remote sensing of aerosol and gases during the KORUS-AQ campaign	Jhoon Kim Jay Al-Saadi
10:30-10:45	Data Overview and Needs	Gao Chen
Session 2: Remote Sensing (11:00-14:15)		
Time	Title	Presenter
11:00-11:15	Airborne DIAL/HSRL Characterization of Ozone and Aerosols during KORUS-AQ	John Hair
11:15-11:30	Aerosol Vertical Structure Measurements during KORUS-AQ campaign	Sang-Woo Kim
11:30-11:45	Spatial Distribution of Aerosol Optical Properties from AERONET Data during KORUS-AQ campaign	Yongjoo Choi
11:45-12:00	Estimating the effects of the long-range transport of atmospheric pollutants in Korea during the KORUS-AQ campaign	Ja-Ho Koo
12:00-12:15	How well do satellite observations and models capture diurnal variation in aerosols over the Korean Peninsula?	Ed Hyer
12:15-12:30	GeoTASO Data Summary	Scott Janz
12:30-12:45	Pandora NO ₂ measurements during KORUS-AQ(April-June 2016)	Matt Kowalewski

Lunch

Session 3: Remote Sensing (const.) (14:15-16:00)

Time	Title	Presenter
14:15-14:30	Developing a high resolution NO ₂ satellite retrieval over Korea using KORUS-AQ data	Dan Goldberg
14:30-14:45	Pandora formaldehyde measurements during KORUS-AQ over Olympic Park (April-June 2016)	Matt Kowalewski
14:45-15:00	Improving our understanding of how aerosol amount and type influence NO ₂ and O ₃ retrievals from OMI over South-Korea	Michal Segal Rozenhaimer
15:00-15:15	Comparing Aerosol and Cirrus optical depth measured from transmitted light by 4STAR during KORUS-AQ onboard the NASA DC8	Sam Leblanc
15:15-15:30	Aerosol impacts on CAFS photolysis frequencies in the Seoul metropolitan area	Sam Hall
15:30-15:45	Tropospheric NO ₂ observation using airborne GeoTASO over the Korea peninsula during KORUS-AQ	Hanlim Lee
15:45-16:00	KORUS-AQ Plume Flagging Update	Jason Schroeder

Session 4 : Poster 1 (16:15-18:00)

Welcome reception Hosted by President of NIER

Day 2 Tuesday 28 Feb**Session 1 : Aerosol formation and characterization (9:00-10:45)**

9:00-9:15	Sources and Characteristics of Aerosols Observed aboard the DC-8 during KORUS-AQ	Bruce Anderson
9:15-9:30	Characteristics of organic compounds in PM _{2.5} at measured at Seoul and Baengnyeong Island during KORUS-AQ campaign	JiYi Lee
9:30-9:45	Molecular Characterizations of PM _{2.5} Organic Matter by an Ultra High-Resolution Mass Spectrometry	Ho-Jin Lim
9:45-10:00	Secondary Organic Aerosol Production over Seoul Metropolitan Area and South Korea	Ben Nault
10:00-10:15	Contribution of (locally emitted) aromatic compounds to secondary organic aerosol formation over the Korean peninsula	Christoph Knote
10:15-10:30	Airborne measurement of glyoxal over the Korean peninsula during the KORUS-AQ	Dongwook Kim
10:30-10:45	Usual and Unusual Biogenic Volatile Organic Compounds observed during KORUS-AQ	Alex Guenther

Break**Session 2 : Aerosol formation and characterization (const.) (11:00-12:45)**

11:00-11:15	HD-SP2 measurements of black carbon containing aerosols on the DC8 during KORUS-AQ	Kara Lamb
11:15-11:30	CCN activity and hygroscopicity depending on aerosol sources in and around the Korean Peninsula during the KORUS-AQ campaign	Minsu Park
11:30-11:45	HD-SP2 measurements of water uptake by black carbon containing aerosol	Joshua Schwarz
11:45-12:00	Aircraft measurements of aerosol chemical composition and the gas-particle partitioning of inorganic aerosol during KORUS-AQ	Taehyoung Lee
12:00-12:15	Real time measurement of chemical composition of submicrometer particles in urban Gwangju during 2016 KORUS campaign	Hee-joo Cho
12:15-12:30	Characteristics of High Aerosol Concentration Cases Measured at Vessel Gisang 1 over Yellow Sea during KORUS-AQ Campaign	Joo Wan Cha
12:30-12:45	Comparison for properties of urban aerosols and their CCN activity based on back trajectory types during the KORUS-AQ campaign	Najin Kim
12:45-13:00	Estimation of the Formation Potential of Secondary Sulfate and Nitrate Aerosol by the Homogeneous and Heterogeneous Reaction in Seoul Metropolitan Area and Baengnyeong Island	Seog Yeon Cho

Lunch		
Time	Title	Presenter
Session 3: Ozone chemistry (14:30-16:15)		
14:30-14:45	High-O ₃ episodes in Seoul 2015: VOC or NO _x limited?	Woochul Choi
14:45-15:00	Effect of BVOCs on O ₃ production at Taehwa Research Forest in June during 2011-2014	Hyunjin An
15:00-15:15	Ground-based atmospheric measurements at Taehwa Research Forest in support of KORUS-AQ	Tom McGee
15:15-15:30	The Taehwa Forest Site: Receptor of high pollution events originating from urban and biogenic emission sources	John T. Sullivan
15:30-15:45	Trace gas observations at Taehwa Research Forest during the KORUS-AQ – how representative it is and we can integrate with the datasets from other platforms.	Saewung Kim
15:45-16:00	Investigation of a High Pollution Event During the KORUS-OC Cruise (26 May)	Ryan Stauffer
Session 4: Poster 2 (16:15-18:00)		

Day 3 Wednesday 1 March

Session 1: Ozone chemistry (const.) (9:00-10:15)

Time	Title	Presenter
9:00-9:15	Chemistry of gas- and particle-phase alkyl nitrates during KORUS	Paul Romer
9:15-9:30	Comparisons of measured and modeled OH, HO ₂ , and OH reactivity during KORUS-AQ	Bill Brune
9:30-9:45	High Frequency Box Modelling of DC-8 Data from KORUS-AQ: Spatial and Temporal Analysis of O ₃ Production Rates in Korea, and Comparison to 3-D Models	Jason Schroeder
9:45-10:00	Implication of early summertime HONO and H ₂ O ₂ on atmospheric oxidative capacity in Seoul, Korea	Jeonghwan Kim
10:00-10:15	Trace gas measurements aboard the Jangmok during KORUS-OC/AQ	Matthew Erickson

Break

Session 2 : Emissions (10:30-12:15)

Time	Title	Presenter
10:30-10:45	Air Chemistry Research In Asia(ARIAs): Aircraft Observations and Model Simulations for the North China Plain	Hao He
10:45-11:00	Development of the Comprehensive Regional Emissions inventory for Atmospheric Transport Experiment(CREATE) in Support of KORUS-AQ/MAPS-Seoul Aircraft Field Campaigns	Jung-Hun Woo
11:00-11:15	PTR-ToF-MS measurements during KORUS-AQ: toluene, isoprene and acetonitrile observations and VOC emission profiles from point sources	Armin Wisthaler
11:15-11:30	Characterization of VOC emissions in the Seoul Metropolitan Area (SMA) based on Whole Air Sampling (WAS), including comparison with Hong Kong	Isobel Simpson
11:30-11:45	Estimating VOC emission rates over the Daesan petrochemical complex using airborne measurements from KORUS-AQ	Seokhan Jeong
11:45-12:00	Formaldehyde Distributions over the Petrochemical & Industrial Complexes on Korea's Northwest Coast and its Potential Effect on the Air Quality over Seoul	Alan Fried
12:00-12:15	Source analysis of formaldehyde (HCHO) in petro-chemical complex plume using Hanseo King Air the NASA Compact Airborne Formaldehyde Experiment (CAFE) measurement during KORUS-AQ mission	Changmin Cho

Lunch and Tour

Day 4 Thursday 2 March

Session 1 : Emissions (const.) and Modeling (9:00-10:30)

Time	Title	Presenter
9:00-9:15	Evaluation of Korean NOx emissions and summary of source contributions	Louisa Emmons
9:15-9:30	Top-down estimate of volatile organic carbon emissions from the Daesan chemical complex.	Paul Wennberg
9:30-9:45	Emissions from rice cultivation across the South Korean Peninsula: changes in atmospheric composition due to biogeochemical processes during rice field flooding	Sally Pusede
9:45-10:00	Spatial Variability of Long-Lived Carbonaceous Gases and their Ratios over the Korean Peninsula	Joshua DiGangi
10:00-10:15	Joint Evaluation of Copernicus Atmosphere Monitoring Service (CAMS) High-resolution Global Near-Real Time CO and CO ₂ Forecasts during KORUS-AQ Field Campaign	Ave Arellano
10:15-10:30	Investigating the performance of WRF-Chem aerosol forecasts during KORUS-AQ	Pablo Saide

Break

Discussion 1 : RSSR Science 1, 4, 5 revisited

11:00-12:45	<p>Discussion 1 :RSSR Science Questions 1, 4, and 5 revisited</p> <ol style="list-style-type: none"> How significantly are the large point sources (power plants, and petrochemical plants) in the west coast affecting the air quality of SMA temporally and spatially? How the influences of long-range transport of air pollution is compared with that of local or national sources? In SMA, the emission contribution of NOx by transport sources and VOCs by solvent usages is now known as 68% and 71 %, respectively. Are these estimates confirmed in the measurements and model studies during the KORUS-AQ campaign period?
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Lunch

Discussion 2 : RSSR Science 2, 3 revisited

14:15-16:00	<p>Discussion 2 : RSSR Science Questions 2 and 3 revisited</p> <ol style="list-style-type: none"> Can we identify 1) what portion of aerosol is comprised with secondary process in SMA and Korea, 2) major sources and factors to control its variation? SMA's ozone formation is NOx limited or VOCs limited? Can we determine the biogenic or natural contributions to ozone production?
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Break

Discussion 3 (Analysis Collaborations and Gaps)

16:15-18:00	Discussion 3 (Analysis Collaborations and Gaps)
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Day 5 Friday 3 March

Time	Title	Presenter
Discussion Session Summaries (9:00-10:30)		
9:00-10:30	Discussion Session Summaries	
Break		
11:00-12:30	Wrap-Up and Future Plans (Meetings and Publications)	
Lunch and Adjourn (12:30-14:00)		

B. Poster Sessions

No	Poster Title	Presenter
Aerosol		
1	Estimated contribution of long range transport of PM using HR-TOF-AMS measurements and PMF analysis	Hye Jung Shin
2	PM Characteristics and High PM Case Study in Gwang-ju city during KORUS-AQ	CheolSoo Lim
3	PM Characteristics and High PM Case Study in Daejeon city during KORUS-AQ	JeongAh Yu
4	Preliminary results of refractory black carbon physical properties and mixing state at Gosan Climate Observatory on Jeju during 2016 KORUS-AQ campaign	Saehee Lim
5	Characteristics of organic aerosol simulation during KORUS-AQ	Duseong S. Jo
6	Characteristics of PM Episodes Observed in PILS for Inorganic Ions, MAAP, and SMPS Downwind of Seoul	Jisoo Park
7	Aerosol Size Distributions and New Particle Formations at Selected Sites in and around the Seoul Metropolitan Area	Jisoo Park
8	New particle formation and growth events in urban Gwangju during 2015-2016 MAPS (Megacity Air Pollution Studies)-Seoul campaign	Hee-joo Cho
9	Shipborne measurements of long-range transported aerosols over Yellow Sea	Hyunok Maeng
10	Aerosol optical depth and its relation to regional-scale circulations over Korea during KORUS-AQ campaign (May-June, 2016)	Hyunhye Yoon
11	Influence of Intense secondary aerosol formation and long range transport on aerosol chemistry and properties during spring time: Results from KORUS-AQ campaign.	Hwajin Kim
12	Characterization of aerosols collected during KORUS-AQ (Korea US Air Quality) sampling period in Olympic park, Seoul, using low-Z particle EPMA and ATR-FTIR techniques	Han-Jin Yoo
13	Estimation of Secondary Organic Carbon Combined with Measurement of Equivalent Black Carbon during KORUS-AQ	Jeonghoon Lee
14	Study on characteristics of heavy metals in the ambient fine particles (PM _{2.5}) of Seoul, South Korea	Yunseok Im
15	Anthropogenic, Dust & Biomass Burning Aerosol Emissions in South Korea	Andreas Beyersdorf

16	In situ Aerosol Optical Measurements in the Marine Boundary Layer during KORUS-OC	Carolyn Jordan
17	The Impacts on Submicron Aerosol Properties Due to Inorganic Nitrate Partitioning	Ben Nault
18	Characterizing the light-absorbing properties of aerosols at Mt. Taehwa during KORUS-AQ 2016	Blanca Rodriguez
19	Nighttime aerosol dynamics measured from AERONET during KORUS-AQ	Brent Holben
20	Observational constraints of toluene oxidation during KORUS-AQ	Michelle J. Kim
21	Tropospheric Aerosol Dynamics: Temporal and Spatial analysis of aerosol chemical properties and distributions from both Anthropogenic and Natural sources	Eric Heim
22	Characterization and Source Apportionment of PM _{2.5} in Korea in 2016	Jihye Lim
23	Atmospheric Aerosol Measurement using Recoverable Vertical Atmospheric PM-sounding Apparatus (RAPA)	Kang Ho Ahn
24	Distributions of real time black carbon concentration and its attribution to PM _{2.5} concentration at an urban hotspot in Seoul : Preliminary study results	Sungroul Kim
25	The mass concentration and chemical composition of ground observation fine particulate matter during KORUS-AQ	Jinsoo Choi
26	Analysis of O ₃ and dust concentrations measured at west Cheong-ju in Korea during KORUS-AQ 2016	Yong-Seung Chung
27	High concentration episodes observed onboard R/V Gisang1 over the Yellow sea	Inae Kwon
Ozone		
28	High-concentration episodes observed onboard the NASA DC 8(< 500 m) in comparison with surface measurements	Inseon Suh
29	Heterogeneous formation of HONO during high O ₃ episodes in Seoul, 2016	Junsu Gil
30	High O ₃ episodes in Seoul 2016: VOC or NO _x limited?	Huijeong Kim
31	Impacts of stratospheric intrusions on tropospheric ozone over East Asia from the KORUS-AQ aircraft campaign	Minjoong J. Kim
32	Source attribution of Ozone and PM _{2.5} for Korea during the KORUS-AQ campaign using GEOS-Chem adjoint model	Jinkyul Choi

33	Inter-comparison of measurement of NO ₂ concentration and understanding their roles on high ozone in Metropolitan Seoul, Korea during KORUS-AQ Campaign	Deug-Soo Kim
34	Uncertainty of NO ₂ measurement by a chemiluminescence technique equipped with molybdenum converter: Implication to the rate of O ₃ formation limited by VOCs and NO _x during KORUS-AQ campaign	Jinsang Jung
35	Diurnal Variation of VOCs at Seoul During the KORUS-AQ Campaign	Seongheon Kim
36	Preliminary Airborne DIAL/HSRL Ozone and Aerosol Measurements and Intercomparisons during KORUS-AQ	Marta Fenn
37	Ozone Variability at the Taehwa Forest Research Station(TRF) during KORUS-AQ : Overview and Examples of Pollution Influences	Anne Thompson
38	Overview of U.S. EPA measurements at Olympic Park Research Site during KORUS-AQ	Russell Long
39	Photochemical Analysis of Ozone in the Taehwa Research Forest	Yeongjae Lee
40	Decadal Change of PAN&O ₃ levels in Seoul during May and June	Hojun Lee
41	O ₃ & PAN at Baegnyeong Island as indicators of continental outflows over the Yellow Sea	Sohyun Park
42	Insights and challenges for calculating ozone production rates using radical measurements: preliminary results from KORUS-AQ	Bill Brune
Emissions		
43	Trace gas retrievals from the GeoTASO airborne instrument using a PCA-based algorithm during KORUS-AQ 2016	Heesung Chong
44	Inter-comparison of VOCs species distribution in the CREATE Emissions Inventory and the Ambient Measurement in Support of KORUS-AQ/MAPS-Seoul Aircraft Field Campaigns	Jinseok Kim
45	Linked Analysis of Baseline Emissions and Reduction Pathways for China and Korea in Support of MAPS-Seoul/KORUS-AQ Campaigns.	Younha Kim
46	Improvement of the Biogenic VOCs Estimation using Enhanced PFT and LAI Information Over Korea in Support of KORUS-AQ/MAPS-Seoul Aircraft Field Campaigns	Yungu Lee
47	Quantification and assessment of fossil fuel carbon dioxide and other anthropogenic trace gas emissions using D14C in Korea and surrounding ocean area during KORUS-AQ	Yonghoon Choi
48	Overview of VOCs measured by Whole Air Sampling (WAS) during KORUS-AQ: Urban, industrial, biogenic, marine, and long-range signals	Don Blake

49	Halocarbons and other volatile organic carbon species: Markers for Chinese and Korean air masses during KORUS-AQ	Nicola Blake
50	Investigating the photochemical evolution of petrochemical plumes during KORUS-AQ	Jason St. Clair
51	The characteristics of gaseous pollutants for aircraft measurement case during KORUS-AQ campaign	Jin-Soo Park
Remote sensing etc.		
52	Formaldehyde (HCHO) column measurements from GeoTASO for KORUS-AQ: Comparison with airborne in-situ measurements, model, and satellites	Hyeong-Ahn Kwon
53	Evaluation and intercomparison of air quality forecasts over Korea during the KORUS-AQ campaign	Seungun Lee
54	Characteristics and distribution of NO ₂ over Korea inferred from Pandora measurements during the KORUS-AQ campaign in 2016	Heesung Chong
55	GOCI Yonsei aerosol retrieval algorithm Version 2 and analysis during the 2016 KORUS-AQ campaign	Myungje Choi
56	Temporal characteristics of HCHO column density retrieved from ground based Pandora measurements over the Korean peninsula in 2016 including the KORUS-AQ campaign period: preliminary results and analysis	Hanlim Lee
57	Surface meteorology and boundary-layer structures in Seoul, Korea during the KORUS-AQ	Moon-Soo Park
58	Preliminary assessment of peroxyacetyl nitrates distribution over urban and suburban region in South Korea.	Young Ro Lee
59	The Role of Unknown and Unmeasured Biogenic Volatile Organic Compounds in Regional Tropospheric Reactivity during KORUS-AQ	Dianne Sanchez
60	Preliminary Diagnosis of the Roles of Nitryl Chloride (ClNO ₂) in the Regional Oxidation Capacity	Daun Jeong
61	Synoptic A-Train tropospheric ozone maps for KORUS-AQ	Dejian Fu
62	Air quality monitoring over East Asia based on multiple-species satellite data assimilation	Kazuyuki Miyazaki
63	A first look at NO ₂ differential slant columns from GeoTASO: comparisons to Pandora and investigating spatiotemporal patterns during KORUS-AQ	Laura Judd
64	Developing a space-based organic aerosol proxy using satellite HCHO data and in situ formaldehyde and organic aerosol relationship	Jin Liao

65	Global High Resolution Simulations to Support KORUS-AQ Data Analysis	Patricia Castellanos
66	GeoTASO instrument characterization and level1b radiance product generation	Matt Kowalewski
67	AERONET investigations of the dynamics of fine mode aerosol optical properties in South Korea with a focus on cases with large cloud fraction and/or fog during KORUS-AQ	Tom Eck
68	Measurements of NO ₂ , total PNs, and ANs from the UC Berkeley TD-LIF instrument.	Paul Wooldridge
69	Data quality and initial assessment of one year of HSRL data collected and Seoul National University	Ralph Kuehn
70	KORUS-OC Atmospheric Overview: Observations of Surface and Column Trace Gases and Aerosols	Ryan Stauffer
71	National Suborbital Research Center: KORUS-AQ DC-8 Facility Data Systems and Communications/Education	Emily Schaller
72	Quantifying chemical mechanism uncertainties and errors	Jerome Barre