

Data Tasks	Contact
Calibrate and resubmit DLH water vapor (complete by end of March)	Diskin
Update P-3B data merge (after DLH resubmission)	Chen
Update NO _y data to provide additional guidance on uncertainty	Weinheimer
Detailed comparison of LIF and CL NO ₂ to provide best estimate profiles with appropriate uncertainty	Weinheimer and Cohen
Correct data definition for Aldino and Beltsville NO ₂ (should be NO _y -NO)	Chen
Investigate noisy ozone data for Beltsville during AM periods 20-29 July	Hains and Joseph
Apply corrections to MDE surface ozone data	Chen and Long
Archive provisional research product for Pandora CH ₂ O	Cede and Herman
Obtain and archive PAMS hydrocarbon data	Hains and Chen
Archive surface and balloon observations from Beltsville	Fuentes and Joseph
Archive VOC observations from Edgewood	Thompson
Archive VOC observations from the UMD Cessna	Stehr
Integrated comparison of P-3B, ozonesonde, tethered balloon, and ground observations	Chen

Data Analysis (Processes and Chemical Budgets)	Lead (Contributors)
Formaldehyde: sources and sinks, relationship to specific VOCs and CO, comparison to satellite observations	Fried (Beyersdorf, Cohen, Doughty/Fuentes, Duncan, Janz, Halladay/Thompson, Olson, Wisthaler)
Reactive nitrogen budget	Cohen group (others?)
CO ₂ sources, distribution, and implications for satellite retrievals	Yang group (others?)
Ozone photochemical budget and sensitivities	Many
<u>Source Characterization Activities:</u>	
Source signatures along the I-95 corridor	Chen and Ziemba
NO _x /BC/CO source apportionment	Dickerson
CH ₂ O + tracer analysis	Chatfield (is this different than activity above?)
Fire influence and long-range transport from HSRL and GEOS-5	da Silva (Ferrare)
Aerosol composition to infer current and past source influences	Hoff group
Weekday/Weekend effects	

Data Analysis (cont.)	Lead (Contributors)
Bay Breeze impacts on pollution levels	Clark (Stauffer, Hoff, Loughner, Pickering)
Relationship between surface and column NO ₂ based on photolytic conversion CL and Pandora	Knepp (Szykman, Crawford)
Correlation of surface and column NO ₂ from multiple sources (aircraft, Pandora, satellite, model)	Flynn (Pickering, Cohen, Weinheimer, Herman)
Differences in the relationship between constituent profiles and PBL structure	
Spatial variability in NO ₂ from ACAM over Hampton Roads	Knepp (Janz)

Trace Gas Retrievals and Atmospheric Correction	Lead (Contributors)
ACAM retrievals for O3, NO2, H2O, HCHO, CHOCHO, and SO2.	Liu (Janz)
Improved ACAM data products (vertical columns?)	Janz (Liu)
Aerosol impacts on radiative transfer and the possibility for improved near-surface retrievals	Chatfield (Anderson et al.)
High resolution NO2 retrievals (and application to ACAM?)	Cohen (Janz, Liu)
Distribution of trace gas and aerosol pollution over the Chesapeake: Impact on atmospheric correction for ocean color	Tzortziou (Janz, Ferrare, Herman, Hostetler, Loughner)
HSRL observations of scattering in the water column	Hu (Tzortziou, Hostetler)

Contextual Work	Lead (Contributors)
Overview Paper	Crawford and Pickering (all)
Meteorological setting and historical climatology: Beltsville, MDE, UMD	Dickerson, Hains, Jospeh, Thompson
Influence of Nabro plume on AOD	Hoff group

Sample manuscripts to be considered in the special issue of Journal of Atmospheric Chemistry

Lead author	Manuscript title	Manuscript status
Anne M. Thompson	Ozone profiles in the Baltimore-Washington region (2005-2011): Climatology, satellite comparisons, and DISCOVER-AQ case studies	
Andra A. Reed	A Comparison of satellite and ground-based measurements of total column ozone and nitrogen dioxide from Edgewood, MD: July 2011	
Ryan M. Stauffer	Bay breeze impact on surface ozone at Edgewood, MD, USA	
Gregory G. Garner	Evaluation of the experimental Community Multiscale Air Quality (CMAQ) modeling system during DISCOVER-AQ	
Douglas Martins	Column-surface comparisons of ozone at a complex coastal site	
David Doughty	On the nocturnal decay of isoprene in a semi-urban environment	
Kevin Sanchez	Controls on ozone and aerosol distribution in the atmospheric surface layer of a semi-urban environment	
Jose D Fuentes	Mass spectral and size attributes of particles in Beltsville, MD USA during summer 2009	
Xiaoming Hu	Why air quality in the mid Atlantic region during summer 2011 was good despite abnormally warm conditions	
Hans Verlinde	Long-term ozone trends and influences of low-level jet on diurnal ozone patterns at Beltsville, Maryland	
Ricardo Sakai	Overview of atmospheric processes in the atmospheric boundary layer at Beltsville during Discover-AQ 2011	
Xiaoming Hu, PM Klein, M Xue, F Zhang, DC Doughty, JD Fuentes	Impact of low level jet-induced leaking of the residual layer on boundary layer ozone	
William R. Stockwell	An investigation of the rates of tropospheric ozone formation: Mechanisms versus DISCOVER reality	
Willaim R. Stockwell, Danny Wang, Jose D Fuentes	Hydrocarbons at Beltsville, MD?	
Anna Schneider, Everette Joseph, Jose D Fuentes, and Anne Thompson	Meteorological controls on summertime tropospheric ozone at Beltsville, MD	

Potential Papers involving UMD

Top issues: Will guidance from CMAQ provide reliable estimates of benefits from emissions reductions in the eastern US?

PBL dynamics

NO_x chemistry

- "A Cavity ringdown NO₂ detector: Measurements from aircraft" Brent, Arkinson, et al.,
- "Evaluation of a Luminol-based NO₂ sonde" Brent/Sluis et al., RSI or ACP needs comparison of NO₂ and NO_y for PAN.
- "The role of an elevated reservoir in a six-day pollution event over the eastern US." Lead: Stehr, Dickerson, ?, He, Thompson, Martins, Pickering, et al.
- "Comparison of tropospheric NO₂ columns observed in situ and from surface-and space-based remote sensing" Lead?, et al., Includes aircraft, ship, PANDORA, OMI, SCIA
- "Urban/Rural NO₂ ratios: comparison of CMAQ and Observations" Canty,
- "AOD observed by sun photometers, in situ aircraft, and space-based instruments: relationship to PM_{2.5}" Lead? Stehr, Shobha, Levy, et al.
- "Too Hot to make Ozone: Extreme heat can reduce isoprene emissions and inhibit ozone production" Lead? Fried (H₂CO), Allen, Vinnikov, et al.

Potential Papers involving UMD

- “The impact of the Chesapeake Bay and Boundary layer dynamics and pollutant concentrations during smog episodes” Goldberg, Why more O₃ over the Bay?
- “The role of the Urban Heat Island and Bay Breeze in anomalously high pollutant concentrations in Edgewood” Loughner(?)
- “Ozone production from upwind to downwind of the Baltimore/Washington area: Measurement model comparisons” Hemberck
- Isoprene and its oxidation products: Measurement/model comparisons and evaluation of MEGAN
- “The role of isoprene oxidation in the H₂CO and CO budget of the eastern US.”

Potential Papers involving UMD

- “The role of isoprene oxidation in the H₂CO and CO budget of the eastern US.”
- “Anthropogenic vs biogenic VOC’s in ozone production in the eastern US”
- WRF boundary layer parameterizations: Evaluation with trace gas profiles
- “The spatial scale of ozone production in the Eastern US: Evaluation of NO_x emissions and removal mechanisms in CBO5 in CMAQ”
- “Ratios among NO_x, CO, BC, SO₂: evaluations of emissions inventories” Arkinson