

ARC-IONS (Intensive Ozone-sonde Network Study): PSU-NASA-NOAA-Environment Canada Partnership

Anne Thompson, Penn State, Working Group – 9 Jan 08

ARC-IONS Summary

- Strategic sonde network ~12 stations, Spring (3 weeks), Summer (3-4 weeks)
 - Sam Oltmans & EC coordination
- Aura overpass launch timing
- NOTE – Special launches for aircraft rendezvous possible at some sites
- Daily posting with GEOS-5 trajectories for Flight Plans -
<http://croc.gsfc.nasa.gov/arcions>

Issues for Team Discussion

- Communications for Special Launches
- Summer – NATIVE adds Yellowknife site – respond for extra launches
- Summer Extra Product = LID budgets
- **Query** – GSFC-traj-based products, Lightning & Aerosol exposure very useful. Access?
- **Team Liaison at Cold Lake = PI**

ARC-IONS

SPRING LAUNCHES

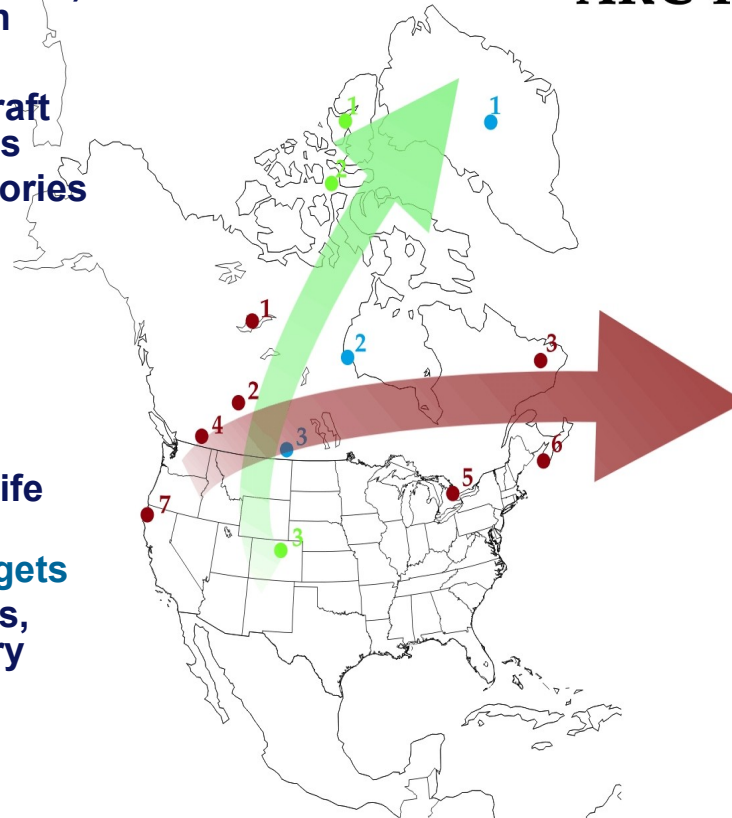
- 1-Eureka, Nunavut, CAN
- 2-Resolute, NT, CAN
- 3-Boulder, CO, US

SUMMER LAUNCHES

- 1-NATIVE Trailer
- 2-Stonyplain, AL, CAN
- 3-Goose Bay, N.L., CAN
- 4-Kelowna, B.C., CAN
- 5-Egbert, ON, CAN
- 6-Yarmouth, NS, CAN
- 7-Trinidad Head, CA, US

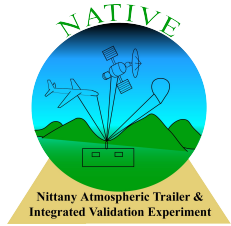
SPRING/SUMMER LAUNCHES

- 1-Summit, GL
- 2-Churchill, MB, CAN
- 3-Bratts Lake, SK, CAN



NATIVE in ARCTAS

(Nittany Atmospheric Trailer and Integrated Validation Experiment)
 (www.meteo.psu.edu/~btaubman/Webpage/native.html)



In-situ trace gas instruments:

TeCo 49C O₃ Analyzer

TeCo 48C-TLE CO Analyzer

TeCo 43C-TLE SO₂ Analyzer

TeCo 42C NO, NO_y Analyzer

Ozonesonde Ground Station

Meteorological Instruments (10 m tower):

T, RH, P, WS, and WD

Remote Sensing Instruments:

YES UVMFR-7

(300, 305, 311, 317, 325, 332, 368 nm)

532 nm Aerosol Lidar

Issues for Working Group

Communications - Yellowknife to Team

Cimel Sunphotometer (GSFC)

Microtops Photometer (GSFC)

HARLI – scanning lidar ??

Note ! Room for more instruments –

Mount NO₂ – Max-DOAS

Double Brewer (EC)

Native Measurements - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.meteo.psu.edu/~btaubman/Webpage/measurements.html

/Data/WAVES/ Angel Homepage Brett Taubman Dictionary.com Directory listing - AVDC Mail :: Penn St

Pandora Internet Radio - Find N... Q from: 931 S Sparks St, State C... Avis -- Make a Reservation

NATIVE

Nittany Atmospheric Trailer and Integrated Validation Experiment

Home

Instrumentation

Measurements

Photos

Links

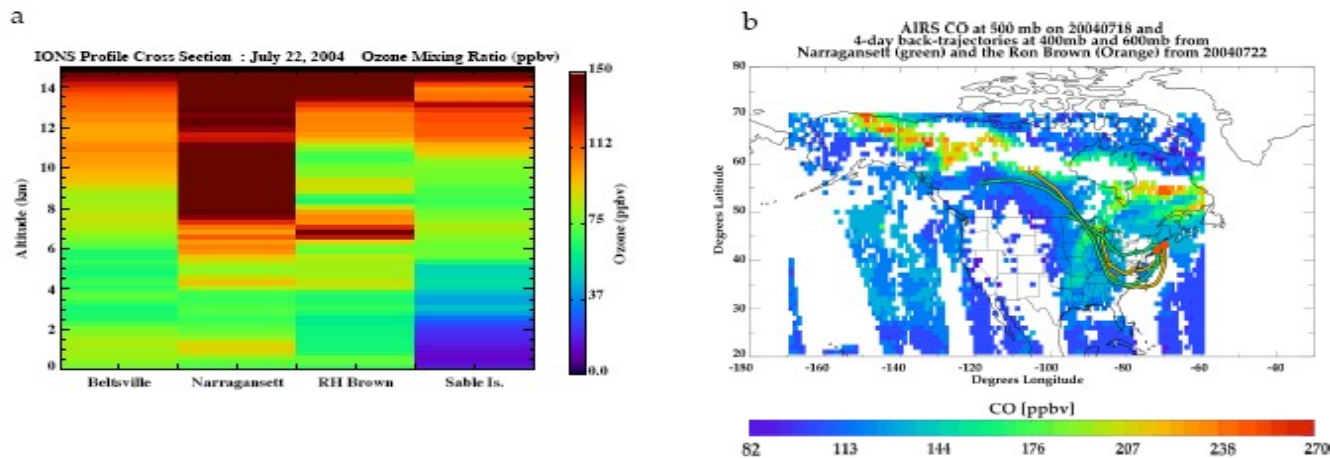
Contact Us

Measurements
(click on date for data)

March 2006							April 2006						
Mon	Tues	Wed	Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
	1	2	3	4	5							1	2
6	7	8	9	10	11	12	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23
27	28	29	30	31	-	-	24	25	26	27	28	29	30

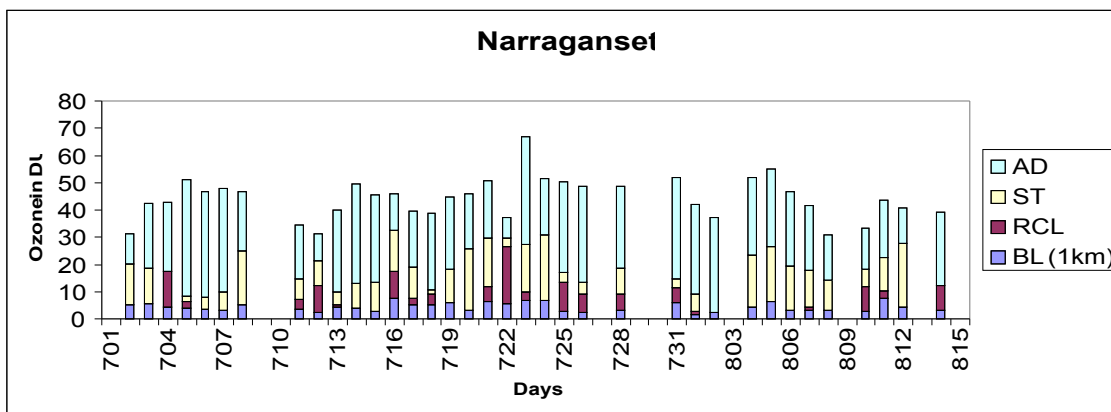
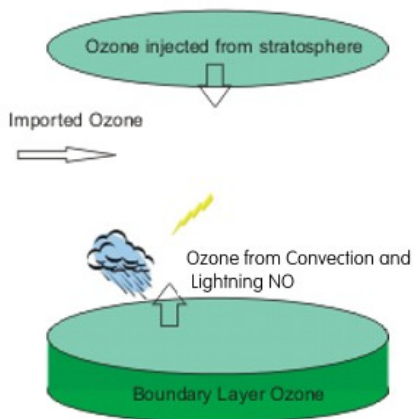
May 2006							June 2006						
Mon	Tues	Wed	Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7	-	-	-	1	2	3	4
8	9	10	11	12	13	14	5	6	7	8	9	10	11
15	16	17	18	19	20	21	12	13	14	15	16	17	18
22	23	24	25	26	27	28	19	20	21	22	23	24	25
29	30	31	-	-	-	-	26	27	28	29	30	-	-

Summer ARCTAS – Compare INTEX-A/IONS-04 Fire Pollution. Expect Mixed O₃ Sources; Track w/ Satellite & Met Data; Aircraft Tracers. *New Product – Laminar Budgets



Query – Lightning, Aerosol “Exposure Products” available During ARCTAS?

Figure 1 (a) Cross-section of ozone mixing ratio from IONS soundings taken 22 July 2004. (b) 500 mb CO measurement from AIRS with 4-day back trajectories from Narragansett and R/V R. H. Brown (from Thompson et al., 2007b).



INTEX-B/IONS-06 Comparisons w/ OMI-TTOR

(Method in M Schoeberl et al, JGR, 2007)

- Upper – Kelowna BC, Aug 06
 - Corr (OMI/ Sonde) = 0.52
 - Corr (difference in TTOR & t'pause height) = 0.39
 - Average dynamic trop ht from TTOR = 10.2 km
- Lower – Bratt's Lake, Aug 06
 - Sonde values are higher
 - Correlation between sonde & OMI TTOR = 0.28
 - Corr (difference in TTOR & dynamic t'pause height) = 0.25
 - Mean dynamic tropopause height = 9.97km

