

TEMPO Science Team, Final Agenda, June 5-6, 2019 Madison WI
Wednesday June 5th, 2019

09:00 – 09:10 University of Wisconsin greeting

Wednesday AM: AQ Constellation Status (Kelly Chance, chair)

Commonalities and differences between constellation data products

09:10 – 09:30 NASA overview: Barry Lefer (NASA/HQ)

09:30 – 10:15 TEMPO status update: Kelly Chance, Raid Suleiman, Erika Wright (SAO/Harvard)

1015-1030 Break

11:30-11:00 GEMS status update: Jhoon Kim (Yonsei University):

11:10-11:30 TEMPO activities in Mexico: Michel Grutter (Universidad Nacional Autonoma de Mexico)

11:30-12:00 TEMPO activities in Canada: Chris McLinden (Environment and Climate Change Canada)

12:00-13:30 Lunch

Wednesday PM: Recent ground based and field campaigns, future opportunities: Brad Pierce, chair

Questions to address:

- What have we learned for TEMPO validation?
- How would TEMPO have been used to support the campaigns?
- How do we design special TEMPO observations for focused field campaigns?
- How do we link diurnally resolved columns to boundary layer dynamics?
- How do we expand NO₂ validation efforts to HCHO and O₃?

13:30-15:00 Recent Field Campaign activities (LMOS, LISTOS, OWLETS)

Science Objectives, management goals, validation opportunities (Brad Pierce, chair)

Science Panel (45min, 1-2 slide synthesis of previous day's meetings to address TEMPO questions followed by discussion)

- airborne column mapping perspective: Laura Judd (NASA/LaRC)
- Pandora perspective: Luke Valin (US EPA)
- Ground based profiling perspective: John Sullivan (NASA/GSFC)
- Aircraft profiling perspective: Angie Dickens (WDNR)
- Modeling perspective: Greg Carmichael (University of Iowa)

Management Panel (45min, half TEMPO addressing management issues followed by discussion)

- LADCO perspective: Zac Adelman (LADCO)
- NESCAUM perspective: Paul Miller (NESCAUM)
- MDE perspective: Joel Dreesen (MDE)

15:00 – 15:15 Break

Recent ground based Activities: Bob Swap, chair (NASA/GSFC)

15:15-15:30 High resolution in situ networks: Ron Cohen (UC-Berkley):

15:30-15:45 Pandora network: Bob Swap (NASA/GSFC):

15:45-16:00 TOLNET deployments: Mike Newchurch (University of Alabama-Huntsville)

Extra talk TEMPO and PANDORA: Jay Herman (NASA/GSFC)

16:00 – 16:15 Break

16:15 - 17:15 **Discussion of possible future campaign opportunities:** M. Newchurch and B. Lefer, chairs

Questions to Address:

- How does TEMPO engage local management agencies and leverage partner resources?
- (TEMPO Green Paper forms initial starting point for engagement)
- How can we create a process to vet future science field campaigns with regard to TEMPO validation plans?
- How do we align Pandora/TOLNET networks and enhanced in-situ monitoring with TEMPO launch schedule?
- What's the expected post-launch schedule for TEMPO science products?
- What's the scope of future campaign opportunities?
- Should we consider revisits to LMOS/LISTOS/OWLETS
- Should we consider a broader EVS (three years from now) land-water interface including coupling between dynamics and chemistry?

17:30 – 19:30 Poster Session

Thursday, June 6th

Thursday AM

Preparing for TEMPO Data: Jim Szykman, Chair (EPA)

9:00-9:15 ASDC DAAC Data distribution: Walter Baskin (NASA/LaRC)

9:15-9:30 SAO Data distribution: Raid Suleiman (SAO)

9:30-9:45 RSIG L2-L4 products/user interface: Jim Szykman (US EPA)

9:45-10:00 Coordinating ground-based in situ/remote networks: Lukas Valin (US EPA)

10:00-10:15 Providing Proxy Data for early adoptors: Aaron Naeger (NASA/MSFC)

10:15-10:30 Break

GOES-R/TEMPO Synergies: Jay Al-Saadi, chair (NASA/LaRC)

10:30-10:45 NOAA Perspective: Pubu Ciren (NOAA/NESDIS/STAR)

10:45-11:00 NASA Perspective: Pawan Gupta (NASA/GSFC)

TEMPO composition/emission constraints

How do we optimize the use of TEMPO measurements to constrain air quality models? Brad Pierce, chair (UW)

11:00-11:15 4DVar NO_x emission adjustments: Zhen Qu (University of Colorado)

11:15-11:30 TEMPO Ozone OSSE/off-line 3DVAR NO_x emission constraints: Brad Pierce (UW)

11:30-11:45 TEMPO OSSE: Ron Cohen (UC-Berkley)

11:45-12:00 Fuel-based mobile source emission inventories: Brian McDonald (NOAA/ESRL)

12:00-13:30 Lunch

Thursday PM

General TEMPO Science Talks (open invitation, Kelly Chance, chair)

13:30-13:50 Connecting TEMPO with air quality, health, and energy needs: Lessons from NASA HAQAST: Tracey Holloway, UW-Madison

13:50-14:10 Interpreting NO₂ observations from TEMPO: the importance of accounting for the free tropospheric background: Daniel Jacob, Harvard

14:10-14:30 TEMPO O₃ profile algorithm: Xiong Liu (SAO)

14:30-14:50 Validation of TROPOMI tropospheric ozone Using TOLNet observations: Matthew Johnson (NASA/AMES)

14:50-15:10 Deriving surface concentrations from TEMPO columns and vertical profile shapes based on DISCOVER-AQ: Kang Sun (University of Buffalo,)

15:10-15:30 Optimized network of PANDORAS for urban-scale validation: Jeffrey Geddes (Boston University)

15:30-16:00 Break

16:00-16:15 OMI surface retrievals improved by machine learning techniques: Guanyu Huang (Spelman College)

16:15-16:30 Revisiting HCHO retrievals from Pandora direct sun measurements, 2016-1019: Elena Lind (Virginia Tech)

16:30-16:45 CH₂O retrievals from our aircraft instruments during last summer's LISTOS campaign: Scott Janz (NASA/GSFC)

16:45-17:00 Multi-sensor (OMPS, OMI, TRIOPOMI, and VIIRS) approach to constrain aerosol emissions: implication for TEMPO and GEMS: Jun Wang (University of Iowa)

17:00-17:30 **Wrap-up** – What needs to be done pre-launch to address foci: Validation networks, link with science field campaigns, engaging regional planning organizations, modeling and data assimilation activities

17:30 END OF TEMPO STM