Trace Gas Breakout

Monika Kopacz, Chris Barnet

Thursday May 15  10:30 – 2:30
How to Cross the Wall of Ignorance

• And the Chicken and the Egg

• The developers had a “Build it and they will come” mentality.

• Funding provides ability to build a product, but not with the interaction needed to have it anticipated by the user community. Users not engaged in the early process. This user engagement exercise is funding limited.
Basic questions

• Describe how SNPP/JPSS products provide continuity from legacy POES, METOP, DMSP, EOS?
  – METOP/IASI, EOS/AIRS EOS/Aura/TES, EOS/Terra/MOPITT
• For new capabilities from SNPP/JPSS describe the benefits
  • No new trace gases, BUT
    – Dense 70% global coverage,
    – LTM (multi satellite mission, with multi year overlap, when all other resources are beyond their design life),
    – Gasses retrieved simultaneously
    – Possibility of additional gases (HCN, HDO, Ammonia)
    – Lower noise
• Provide Details on:
  – when do you plan to use the SNPP/JPSS NESDIS Product? NOTE: IASI === NUCAPS because it is identical code, format, and very similar characteristics
  – NESDIS deliver product (IASI+NUCAPS):
    – Ira Aoeifer IASI CH4 currently, funded by NASA ROSES
    – currently sporadic users for science applications
    – validation/comparisons with GOSAT, potential with OCO
    – Jonathan Smith using IASI and NUCAPS O3/CO
    – NASA/SPoRT using O3
    – TOAST O3
  – Users of legacy instrument (e.g., AIRS, TES, MOPITT) users of these instruments will have to use CrIS product and ultimately will have vested interest in using products
Atm Chem Part 2

– Is there an actionable plan? Workshop – STAR/CPO workplan to develop products – engage user community
  • Is it funded? Yes,
    – STAR developers has responsibility to meet the requirements via continuous measurements
    – AER is funded for new research NH3 algorithm via AC4
    – CPO/AC4 has resources to support atmospheric composition studies

– What is the priority?
  • CPO/AC4: have not ranked priorities yet, it is one of a few priorities

– Have you thought about how you will get the data and have you identified the issues with your operational use of SNPP/JPSS? CLASS, Users have expressed concerned with access

– Are the current legacy products well utilized? yes

– Is the SNPP/JPSS product part of a blended product? Yes TOAST, TACO-O3

– What additional work needs to be done to ensure that the SNPP/JPSS product is/will be well utilized? Averaging kernels in operational products (data reduction), validation of product wrt reference instrument, closer collaboration between developer and user community
Are enhancements needed for:

• **Accessibility** (data flow, latency, format)
  – Low latency products are needed for field experiments
    • The scientific interaction can be supported by STAR
    • But we need to communicate this capability
  – Numerous users have complained that obtaining trace gas products from CLASS:
    • Is not user friendly (cumbersome),
    • There is a lack of tools to narrow search range,
    • That all our products in one large file (no targeted retrieval)

• **Product performance** (accuracy, precision)
  – Full resolution required for CO and opaque water lines and may improve other products
  – Desire for filling spectral gap – formic acid, HDO

• **User applications** (modifications to modeling, decision tools, visualization to use the new products)
  – Level 3
  – Tailored products (e.g. lower vertical sampled CO with Avg Kernels)
  – Website visualization