

Biogenic Emissions Inventory System version 4 (BEIS4) plans for 2020 National Emissions Inventory

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Outline

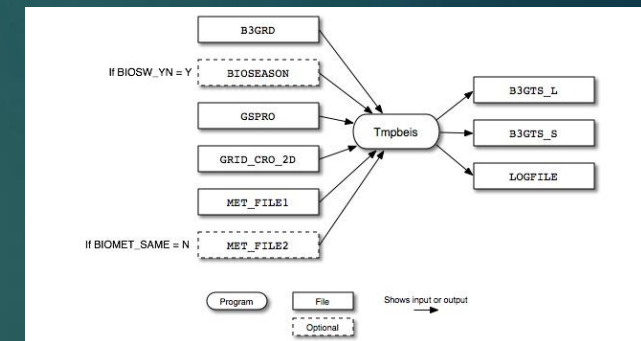
- ▶ Recent History of BEIS use in EPA Emissions Modeling Platforms
- ▶ How EPA supports versions of BEIS
- ▶ Plans for using BEIS4/BELD6 in 2020NEI
- ▶ Plans for using BEIS4/BELD6 in SMOKE modeling system

Recent History of BEIS use at OAQPS

- ▶ Biogenic Emissions Land Database version 4 (BELD4) and BEISv3.60 configuration used for 2016v1 Emissions Modeling Platform
 - ▶ Work in Collaboration with SLTs/MJOs (2017 – 2019)
 - ▶ <https://www.epa.gov/air-emissions-modeling/2016-version-1-technical-support-document>
- ▶ BELD5/BEISv3.70 used to generate 2017 NEI county emissions estimates and emissions for 2017 Emissions Modeling Platform (Late 2019/Early 2020)
 - ▶ 2017 Technical Support Document:
https://www.epa.gov/sites/default/files/2020-11/documents/2017_emissionschapter.pdf
- ▶ BELD5/BEISv3.70 used to generate emissions for the 2016v2 Emissions Modeling Platform (Late 2021)
 - ▶ 2016v2 TSD: https://www.epa.gov/system/files/documents/2021-09/2016v2_emismod_tsd_september2021.pdf

How EPA supports versions of BEIS

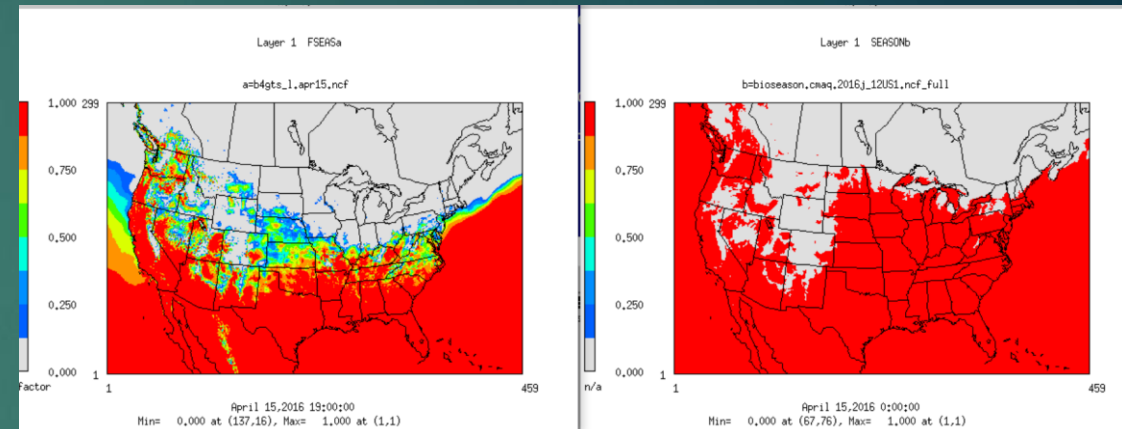
- ▶ Two ways to obtain and use BEIS software:
 - ▶ CMAQ: generate biogenic emissions inline
 - ▶ Typically supported by EPA-ORD
 - ▶ Sparse Matrix Operator Kernel Emissions (SMOKE) modeling system (stand-alone)
 - ▶ Typically supported by EPA-OAQPS staff and by funding to Community Modeling and Analysis System (CMAS)
 - ▶ SMOKE-BEIS typically used to support other models besides CMAQ
 - ▶ Current version of SMOKE is v4.8.1 which has BEIS3/BELD5 support:
<https://www.cmascenter.org/smoke/documentation/4.8.1/html/>
 - ▶ Other CMAS tools provide support interpolating BELD4 or BELD5 to desired modeling grid



Plans for using BEIS4/BELD6 in 2020NEI

5

- ▶ Porting CMAQ-BEIS4 code from Jesse Bash into SMOKE (now)
- ▶ Quality assurance of each BEIS modification
 - ▶ BELD6 (ongoing)
 - ▶ Season switch logic (complete)
 - ▶ Using WRF Leaf Area Index (complete)
- ▶ Generate year 2020 emissions
 - ▶ Using modified SMOKE (March)
 - ▶ Compare vs BEIS3/BELD5 vs other years
 - ▶ Provide draft county estimates via 2020NEI and time for SLT comments (Spring)
 - ▶ Finalize biogenic emissions for 2020NEI (Fall/Winter 2022)



Plans for using BEIS4/BELD6 in SMOKE

- ▶ Next SMOKE release planned for this July
- ▶ Plan is to provide BEIS4 support in this next SMOKE release
- ▶ Tool(s) to support interpolating BELD6 to desired modeling grid likely to be provided later
 - ▶ BELD6 will be available for EPA 12km modeling grids

QUESTIONS?
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