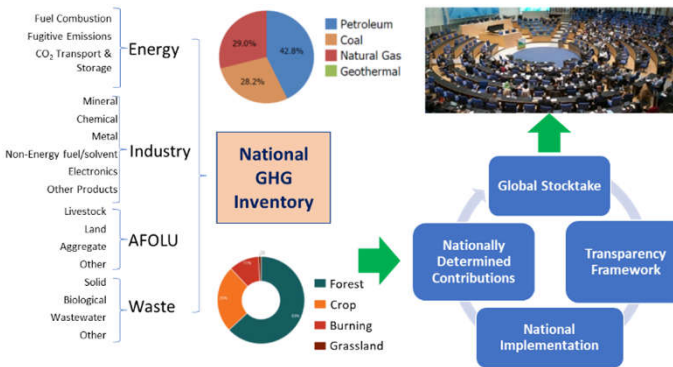
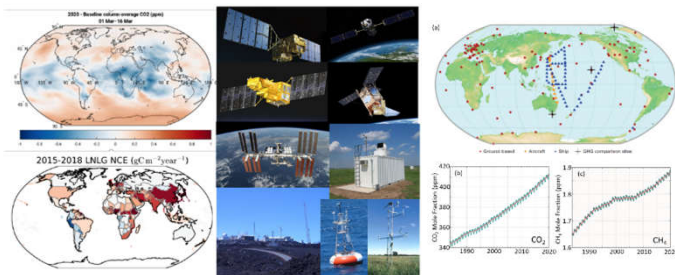


A. von Bargaen (DLR), J. Privette (NOAA), M. Dowell (EC), F. M. Seifert (ESA)  
on behalf of the Systematic Observations Community

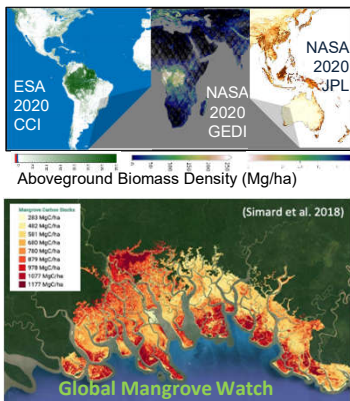


## Earth Observations

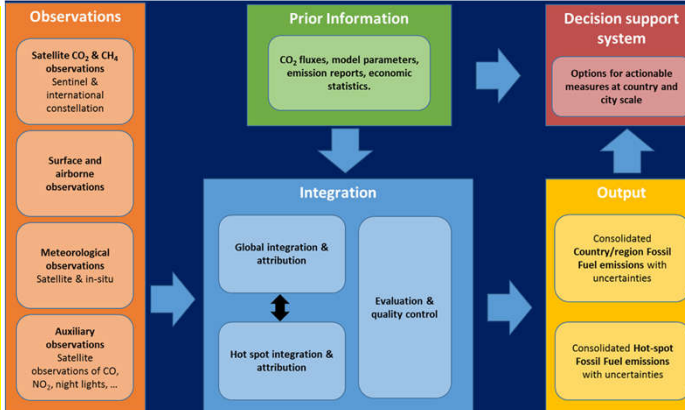


**Top-Down GHG Estimates**  
Space- and ground-based measurements of atmospheric carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) are analyzed with atmospheric transport models to estimate Greenhouse Gas (GHG) emissions and removals from human activities and the natural land and ocean.

Agriculture, Forestry and Other Land Use (AFOLU) is the second largest source of emissions (after fossil fuel use) globally, and is the primary source of emissions in many developing nations



**Bottom-up GHG National Inventories** can be combined with Top-down GHG estimates to produce a more complete and transparent input to the Global Stocktakes (GST).



- **Earth Observation** community is supporting the GSTs.
- **Space observation capabilities** must evolve from research to operational (Goal: 2<sup>nd</sup> GST) and sustained.
- A sustained systems approach provides a seamless flow of reliable information to national stakeholders