

The NASA Carbon Monitoring System Phase 2 Synthesis

Hurtt, G.C., A. Andrews, K. Bowman, M. E. Brown, A. Chatterjee, V. Escobar, L. Fatoyinbo, P. Griffith, M. Guy, S. P. Healey, D. J. Jacob, R. Kennedy, S. Lohrenz, M. E. McGroddy, V. Morales, T. Nehrkorn, L. Ott, S. Saatchi, E. Sepulveda Carlo, S. P. Serbin, H. Tian (2022) *Environmental Research Letters*, 17, 063010. <https://doi.org/10.1088/1748-9326/ac7407>



Science Questions

- Four key questions: What has been attempted? What major results have been obtained? What major gaps and uncertainties remain? and What are the recommended next steps?

Analysis

- 'Phase 2' activities (2011–2019): 79 projects, 482 publications and 136 data products.
- Products reviewed hierarchically first within theme, then by theme, and finally at the initiative level. Themes included: land biomass, atmospheric flux and methane, stakeholder, and oceans/wet carbon. Additional metrics included: domain, resolution, citation, downloads, and application readiness level (ARL).

Results

- Engaged large and diverse set of scientists and stakeholders (132) from multiple themes, countries, and organizations.
- Numerous projects/products globally (22/37), in the US (31/60), and internationally (26/39) including 15 at highest ARL.
- Multiple qualitative successes: mapping forest biomass in AK, forest carbon monitoring for Maryland/RGGI, US cropland carbon flux and export, US methane reporting, Indonesian fire emissions, global wetland carbon mapping, international framework for MRV, and more.
- Different policy needs at different scales drive important differences in science requirements
- Importance and challenges of sustaining key advances and meeting additional/future needs
- >125 specific points related to scope, findings, gaps, and next steps.

Significance

- NASA CMS is one of the most ambitious relevant science initiatives to date, exploiting the major strengths of the NASA Earth Science program, while partnering with other agencies, institutions, and stakeholders.
- CMS has demonstrated that addressing stakeholder needs and advancing science for carbon are mutually beneficial, with societal needs driving new science requirements and resulting in new scientific results of high societal relevance.

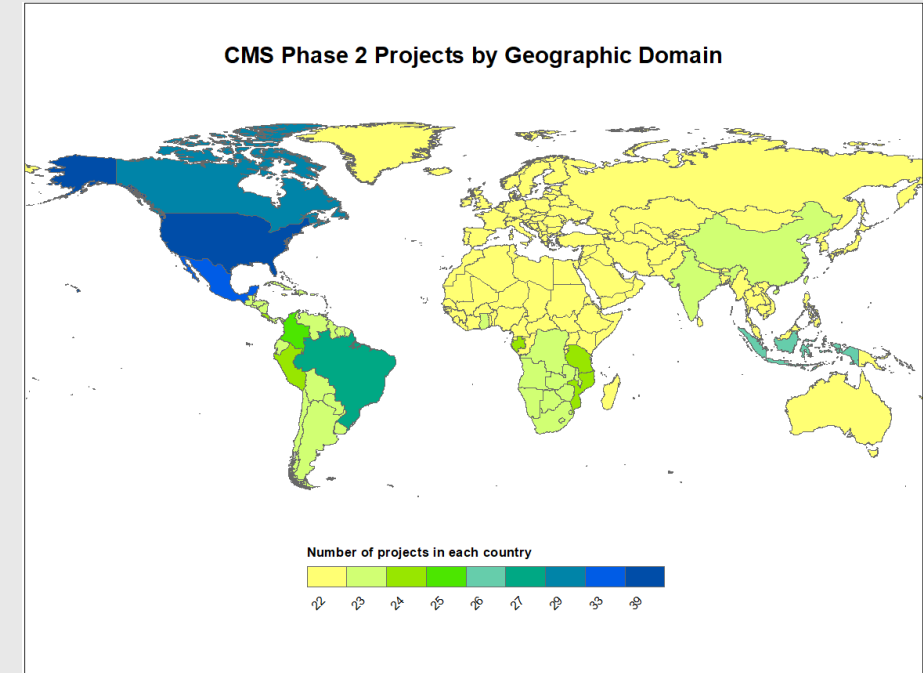


Figure: Number of CMS Phase 2 projects by geographic domain. There are 22 global projects and additional projects in various countries.

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