Optimized space collection of ECVs and threading ECVs back to MIT's storied earth systems modeling efforts.

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Consistently collecting the earth's climate signatures remains a priority for world governments and international scientific organizations.

Applying a new rule based optimization tool to efficiently collect ~26 of the 50 ECVs from space provides guidance & opportunities for global collaboration. Threading critical ECVs back into the sub-models and mosaic of MIT's probabilistic earth systems model (ESM), highlights how improvements in modeling accuracies and uncertainties can be a direct result of calibrated ECV collections.

Multiple applications of such new tools clearly promote the advantages of global architecture collaboration. 'Value assessment system architecture using rules' (VASSAR) an optimization tool adapted for climate centric space collections of ECVs, highlighted just such opportunities. An graphical summary of these results is included.

The valuable next step of tracing ECVs collection standards to MIT's 20 year atmosphere-ocean-land general circulation modeling (AOGCM) investment, allows mapping of ECVs back to recent MIT modeling validation &verification efforts for inaccuracies and uncertainties. The benefits of space collections of calibrated ECVs (over time), means MIT's storied modeling analysis can be improved based on differencing modeling results against the ECV measurements. The process to validate improvements and calibrate for uncertainties is just taking place in late 2015.

A schematic representation of MIT's probabilistic modeling (IGSM & EPPA) aligned with the actual space collections that advanced improvements in accuracy and value of the modeling; includes the 'forward modeling' of policy decisions and assessment of the impacts by human emissions on future climate changes.