ARLs

Applications Concept (orange triangle, ARL-2)

Initial I&V in Laboratory Environment (blue triangle, ARL-4)

Demonstration in Relevant Environment (green triangle, ARL-6)

Application Completed and Qualified (pink triangle, ARL-8)

ARL-1 | ARL-2 | ARL-3 | ARL-4 | ARL-5 | ARL-6 | ARL-7 | ARL-8 | ARL-9

Basic Research (yellow triangle, ARL-1)

Proof of Applications Concept (gray triangle, ARL-3)

Validation in Relevant Environment (light blue triangle, ARL-5)

Application of Prototype in Partner's Operational Decision Making (green triangle, ARL-7)

Approved, Operational Deployment, & Use in Decision Making (purple triangle, ARL-9)

SY 2014 Projects

Andrews-03
Baker-01
Bowman-02
Ganguly-01
Greenberg-01
Hudak-01
Hurtt-03
Jacob-02
Lohrenz-05
Morton-01
Windham-Myers-01

Fatoyinbo-01
Ott-01
Walker-W-01
Williams-C-01

Different ARLs are provided for the products in these projects. Refer to individual corresponding charts describing the product ARLs.
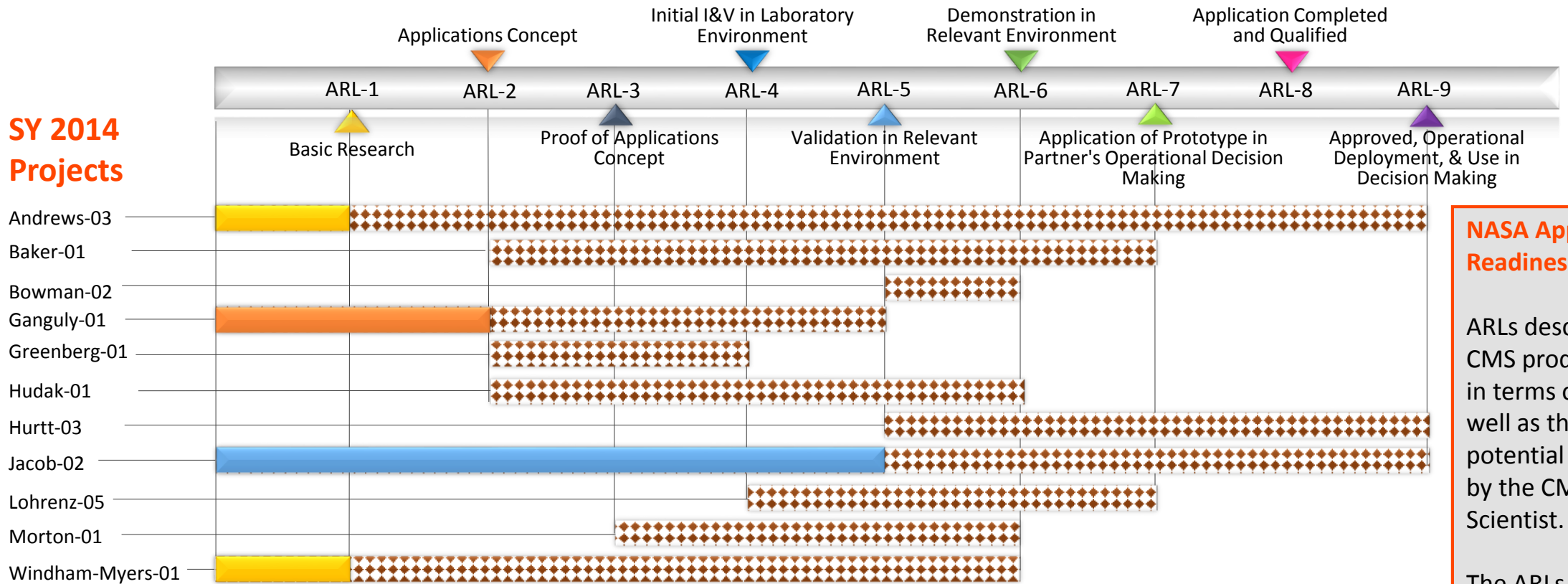
NASA Application Readiness Levels (ARLs)

ARLs describe where the CMS product is currently in terms of readiness, as well as the desired and potential level as defined by the CMS Product Scientist.

The ARLs were provided by the CMS Product Scientist and represent the most accurate representation of the state of each product.
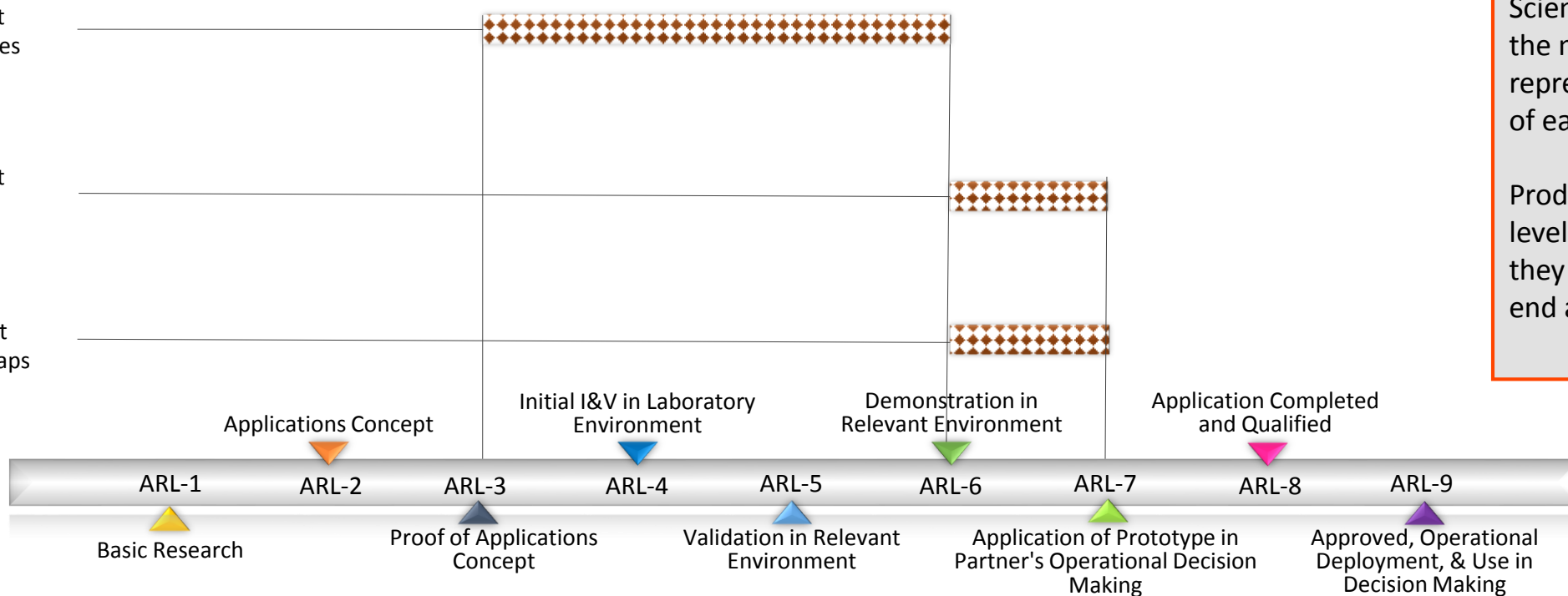
Products can start at any level. It is not expected they will start at ARL1 and end at ARL9.

Project ID
PI-Project # (Andrews-02)-Each CMS Project is represented by its color and identified by the PI on the project

Solid color: each solid bar is indicative of where the PI feels their project is NOW in terms of application readiness.

Pattern fill: indicates the level each PI is striving for and the application readiness level they feel their project can ultimately satisfy.

Gradient fill: indicates current level has not been reached fully.

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Fatoyinbo-01 Products

Mangrove forest biomass estimates

Mangrove forest extent maps

Mangrove forest cover change maps

Applications Concept

Initial I&V in Laboratory Environment

Demonstration in Relevant Environment

Application Completed and Qualified

SY 2014

ARL-1   ARL-2   ARL-3   ARL-4   ARL-5   ARL-6   ARL-7   ARL-8   ARL-9

ARLs

Basic Research

Proof of Applications Concept

Validation in Relevant Environment

Application of Prototype in Partner's Operational Decision Making

Approved, Operational Deployment, & Use in Decision Making

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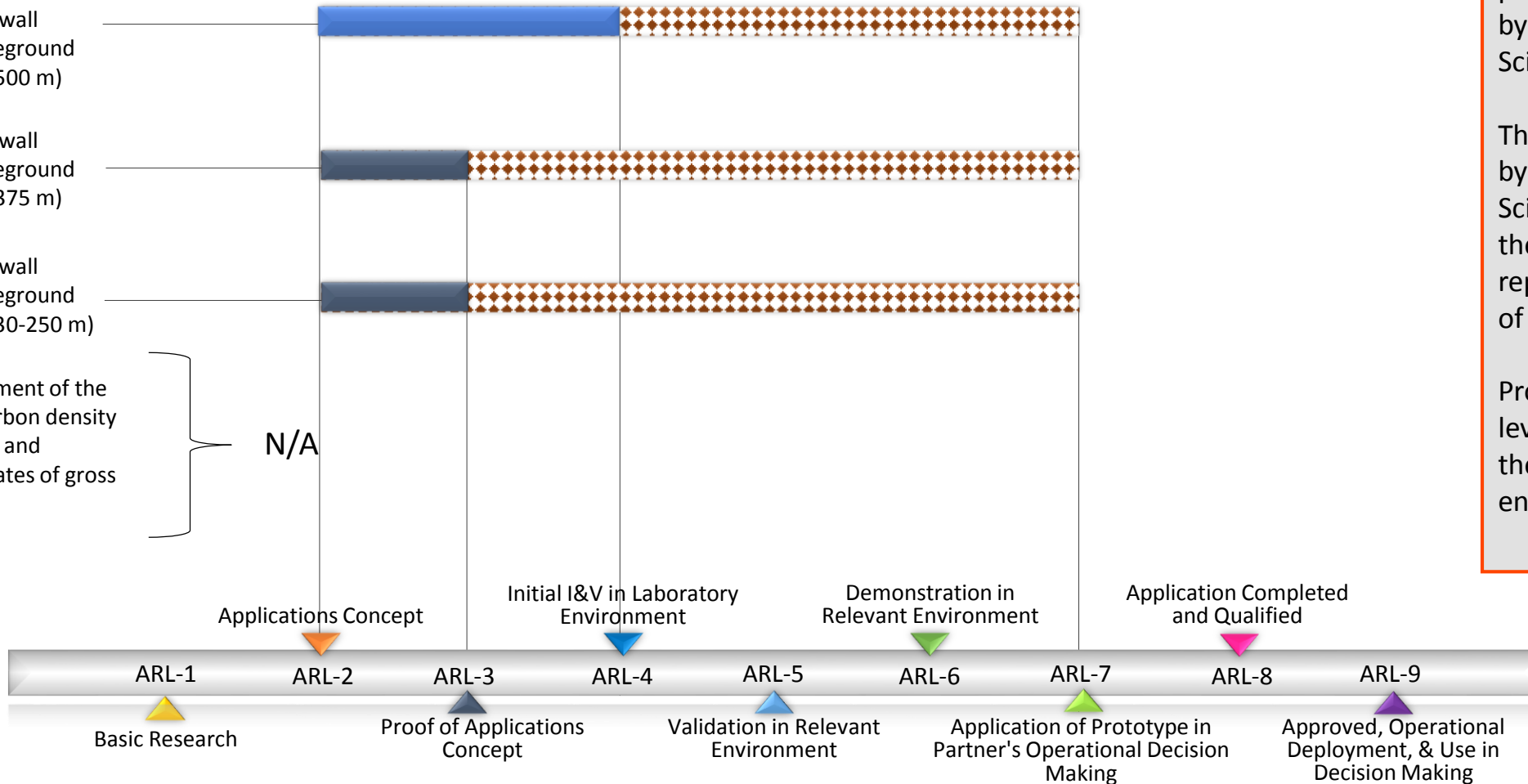
Walker-W-01 Products

Maps of wall-to-wall changes in aboveground carbon density (500 m)

Maps of wall-to-wall changes in aboveground carbon density (375 m)

Maps of wall-to-wall changes in aboveground carbon density (30-250 m)

Accuracy assessment of the aboveground carbon density change products and derivative estimates of gross emissions

N/A

SY 2014

Applications Concept

Initial I&V in Laboratory Environment

Demonstration in Relevant Environment

Application Completed and Qualified

| ARL-1 | ARL-2 | ARL-3 | ARL-4 | ARL-5 | ARL-6 | ARL-7 | ARL-8 | ARL-9 |

ARLs

Basic Research

Proof of Applications Concept

Validation in Relevant Environment

Application of Prototype in Partner's Operational Decision Making

Approved, Operational Deployment, & Use in Decision Making

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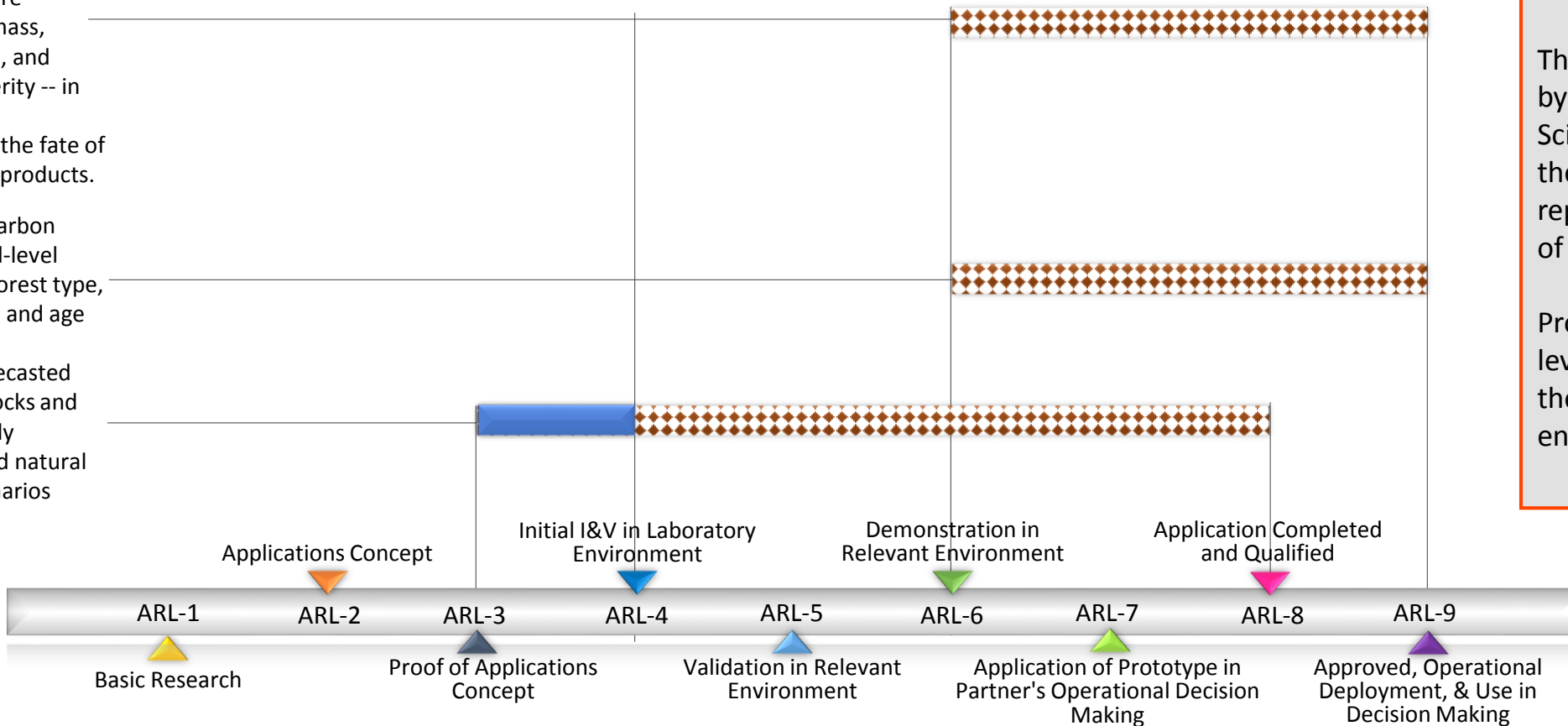
Products can start at any level. It is not expected they will start at ARL1 and end at ARL9.

Williams-C-01 Products

Maps of forest carbon fluxes, with pixel-level information on pre-disturbance biomass, disturbance type, and disturbance severity -- in addition to the incorporation of the fate of harvested wood products.

Maps of forest carbon stocks, with pixel-level information on forest type, site productivity, and age

Estimates of forecasted forest carbon stocks and fluxes under likely management and natural disturbance scenarios

Applications Concept

Initial I&V in Laboratory Environment

Demonstration in Relevant Environment

Application Completed and Qualified

SY 2014

ARL-1   ARL-2   ARL-3   ARL-4   ARL-5   ARL-6   ARL-7   ARL-8   ARL-9

ARLs

Basic Research

Proof of Applications Concept

Validation in Relevant Environment

Application of Prototype in Partner's Operational Decision Making

Approved, Operational Deployment, & Use in Decision Making

CMS Application Readiness Level Descriptions

Color Code	Applications Readiness Level	Description
	ARL-1	Basic research
	ARL-2	Applications Concept
	ARL-3	Proof of Applications concept
	ARL-4	Initial integration and verification in a laboratory environment
	ARL-5	Validation in relevant environment
	ARL-6	Demonstration in relevant environment
	ARL-7	Application of prototype in partners' operational decision making
	ARL-8	Application completed and qualified
	ARL-9	Approved, operational deployment, and use in decision making

Desired Level

START YEAR 2014 CMS PROJECTS

Project Group	Project Title
Andrews-03	Regional Inverse Modeling in North and South America for the NASA Carbon Monitoring System
Baker-01	A Global High-Resolution Atmospheric Data Assimilation System for Carbon Flux Monitoring and Verification
Bowman-02	Continuation of the CMS-Flux Pilot Project
Fatoyinbo-01	Total Carbon Estimation in African Mangroves and Coastal Wetlands in Preparation for REDD and Blue Carbon Credits
Ganguly-01	Reducing Uncertainties in Satellite-Derived Forest Aboveground Biomass Estimates Using a High Resolution Forest Cover Map
Greenberg-01	Reducing Uncertainties in Estimating California's Forest Carbon Stocks
Hudak-01	Prototyping a Methodology to Develop Regional-Scale Forest Aboveground Biomass Carbon Maps Predicted from Landsat Time Series, Trained from Field and Lidar Data Collections, and Independently Validated with FIA Data
Hurtt-03	High Resolution Carbon Monitoring and Modeling: Continuing Prototype Development and Deployment
Jacob-02	High-Resolution Constraints on North American and Global Methane Sources Using Satellites
Lohrenz-05	An Integrated Terrestrial-Coastal Ocean Observation and Modeling Framework for Carbon Management Decision Support
Morton-01	Long-Term Carbon Consequences of Amazon Forest Degradation
Ott-01	GEOS-Carb II: Delivering Carbon Flux and Concentration Products Based on the GEOS Modeling System
Walker-W-01	Direct Measurement of Aboveground Carbon Dynamics in Support of Large-Area CMS Development
Williams-C-01	Translating Forest Change to Carbon Emissions/Removals Linking Disturbance Products, Biomass Maps, and Carbon Cycle Modeling in a Comprehensive Carbon Monitoring Framework
Windham-Myers-01	Linking Satellite and Soil Data to Validate Coastal Wetland 'Blue Carbon' Inventories: Upscaled Support for Developing MRV and REDD+ Protocols