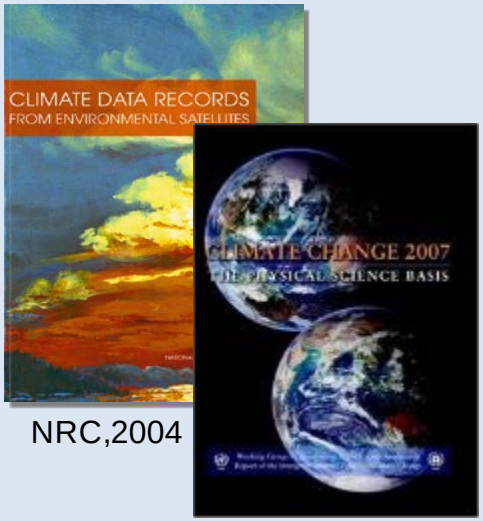
NOAA CDRs: Moving From POES to JPSS

Jeff Privette

Deputy, Center for Weather and Climate
National Centers for Environmental Information

15th Annual Advisory Board Meeting
29 July 2016

Program Genesis



NRC,2004

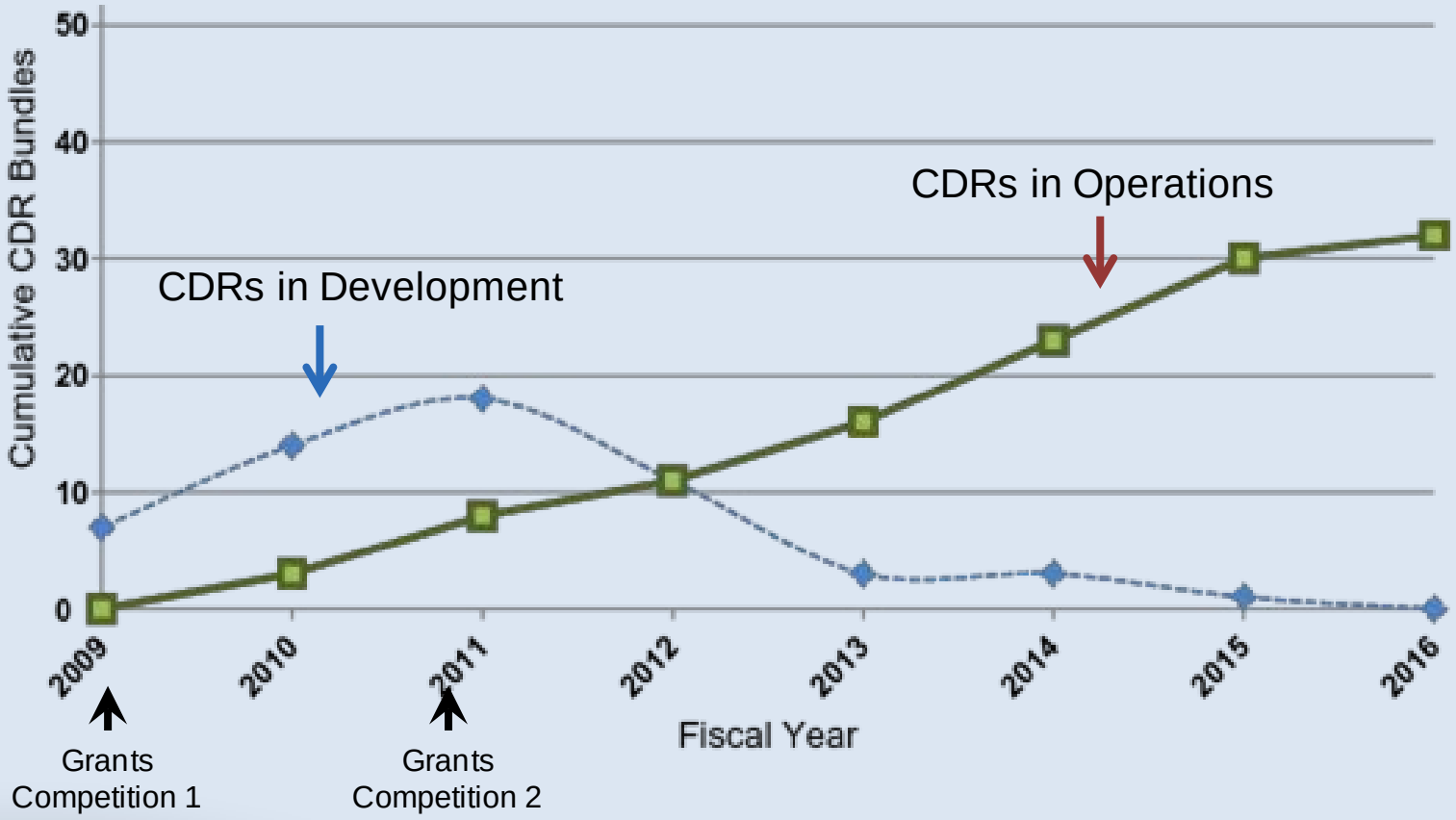
IPCC AR4, 2007

Start: 2010

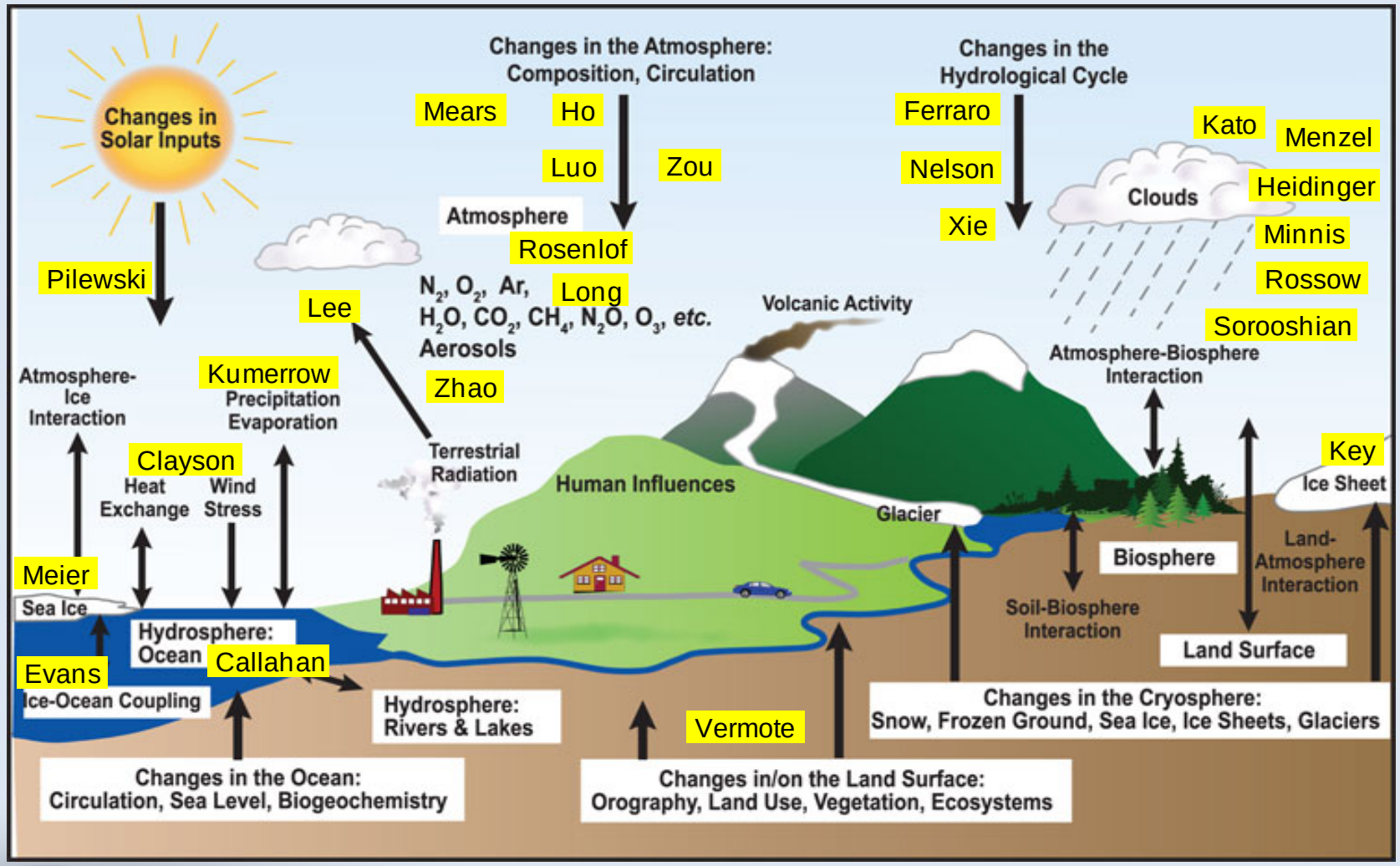
Goal: Develop, sustain and steward long-term homogeneous products in a transparent, cost-effective, and scientifically-defensible manner

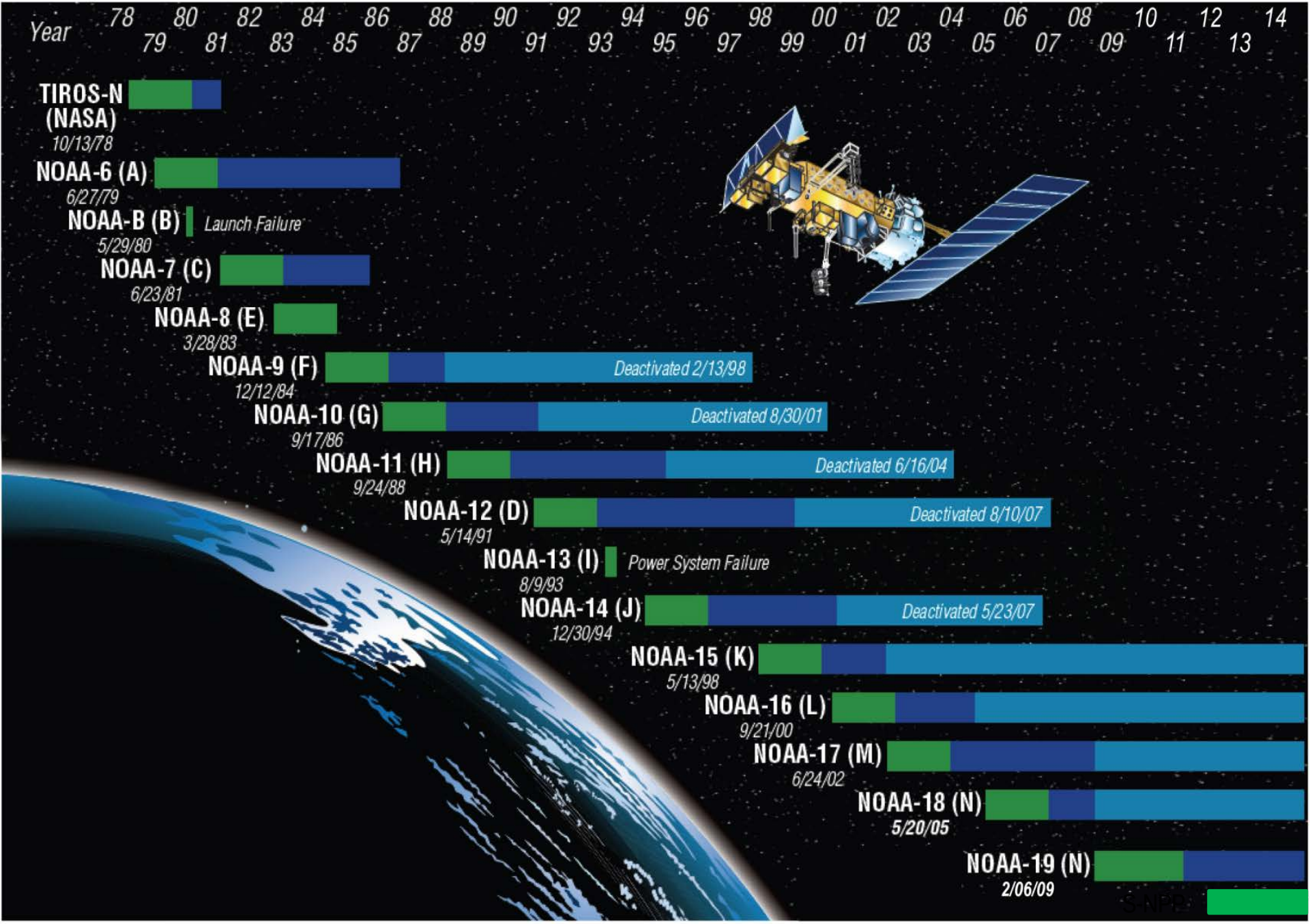
Approach: Select and adapt leading research satellite products and transition to NOAA operations

Nearly All CDR Developments Now Operational

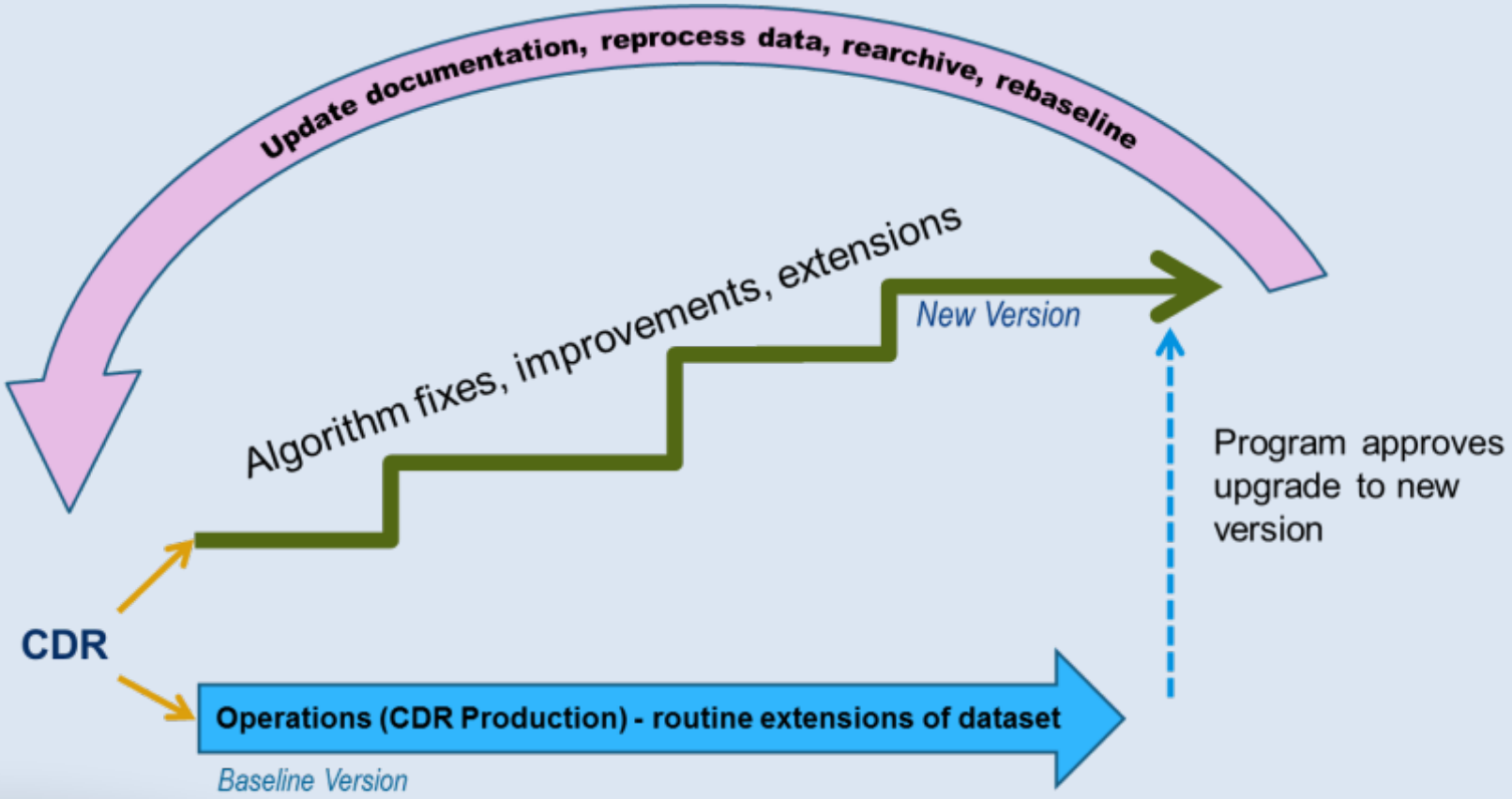


Key System Variables Now Sustained




Year
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14
TIROS-N (NASA)
10/13/78
NOAA-6 (A)
6/27/79
NOAA-B (B)
Launch Failure
5/29/80
NOAA-7 (C)
6/23/81
NOAA-8 (E)
3/28/83
NOAA-9 (F)
12/12/84
Deactivated 2/13/98
NOAA-10 (G)
9/17/86
Deactivated 8/30/01
NOAA-11 (H)
9/24/88
Deactivated 6/16/04
NOAA-12 (D)
5/14/91
Deactivated 8/10/07
NOAA-13 (I)
8/9/93
Power System Failure
NOAA-14 (J)
12/30/94
Deactivated 5/23/07
NOAA-15 (K)
5/13/98
NOAA-16 (L)
9/21/00
NOAA-17 (M)
6/24/02
NOAA-18 (N)
5/20/05
NOAA-19 (N)
2/06/09
S-NPP
Expected 2 Year Operational Life
Expected Operational Life (Beyond 2 years)
Expected Backup Operational Life

Baselined Operations, With Algorithm Improvement Options



CDRs Extendable With VIIRS

Thematic CDRs

1. AVHRR Aerosol Optical Thickness
2. AVHRR Cloud Properties - PATMOS-x
3. Ocean Near-surface Atmospheric Properties (derived)
4. Extended AVHRR Polar Pathfinder (APP-x)
5. Sea Surface Temperature - Optimum Interpolation
6. Sea Surface Temperature - Pathfinder
7. Sea Surface Temperature – WHOI (derived)
8. Ocean Heat Fluxes (derived)
9. AVHRR Surface Reflectance
10. Leaf Area Index and FAPAR
11. Normalized Difference Vegetation Index
12. Snow Cover Extent (Northern Hemisphere) (derived)

Fundamental CDR

1. **AVHRR Reflectance - PATMOS-x**
2. **AVHRR Polar Pathfinder (APP)**

CDRs Extendable With CrIS

Thematic CDRs

1. Outgoing Longwave Radiation - Daily
2. Outgoing Longwave Radiation - Monthly
3. Precipitation - PERSIANN-CDR (derived)
4. Geostationary IR Channel Brightness Temperature - GridSat (derived)

Fundamental CDR

1. **HIRS Ch12 Brightness Temperature**

CDRs Extendable With ATMS

Thematic CDRs

1. Mean Layer Temperature - NOAA
2. Mean Layer Temperature - RSS
3. Mean Layer Temperature - UAH
4. Mean Layer Temperature - UCAR (Lower Stratosphere)
5. Mean Layer Temperature - UCAR (Upper Trop & Lower Strat)
6. Precipitation - PERSIANN-CDR (derived)
7. AMSU Brightness Temperature – NOAA (Water Vapor)

Fundamental CDR

1. **MSU Brightness Temperature – NOAA (Static)**

CDRs Extendable With OMPS

Thematic CDRs

1. Ozone – ESRL (Static)

One Approach for Migrating to NPP/JPSS

1. **Designate a CDR JPSS Steering Team**
   - Cross-NOAA user representatives, NCEI User Engagement
   - Remote sensing experts
   - Common-interest partners (STAR, NASA, GSICS, EUMETSAT, Copernicus)

2. **Prioritize CDRs for JPSS-era continuity**
   - Assess partners' products as alternatives

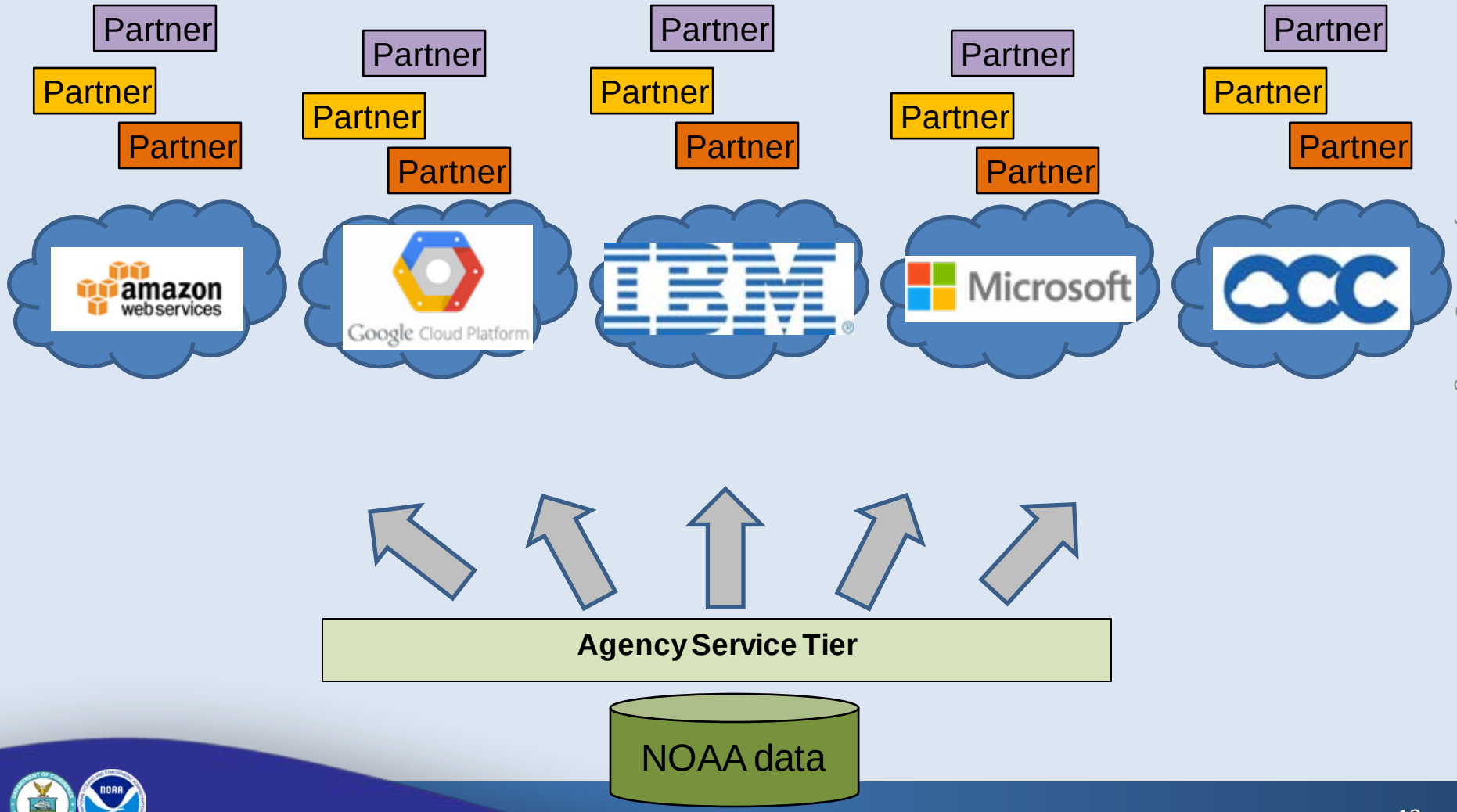
3. **Determine options for extending prioritized CDRs**
   - Adjust JPSS to look like POES (User systems don't change)
   - Improve product by exploiting new JPSS capabilities (User systems change)
   - Assess options for using common FCDRs, including reprocessed SDRs as viable

4. **Negotiate execution and sustainment among partners**

Summary

- **NCEI will soon be sustaining 35 operational CDR bundles (~200 products)**
- **Most rely on POES data and are suitable for extension with NPP/JPSS data**
- **Transition priorities will be developed together with user communities**
- **Transitioning from POES to NPP/JPSS will involve significant effort and resources**
- **Partnering is necessary for long-term affordability**
  - STAR
  - NASA
  - GSICS
  - EUMETSAT
  - Copernicus
  - Others

NOAA Big Data Partners: Alliance Concept



Jeff.deLaBeaujardiere@noaa.gov

2015-09-24

13

Thanks!

Questions?