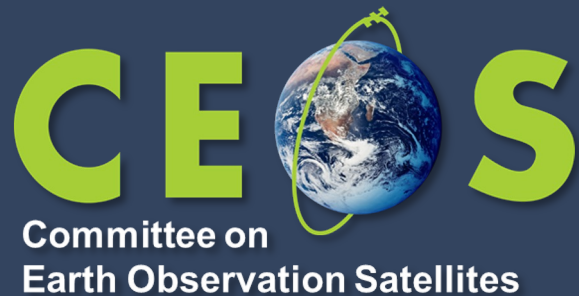


GHRST R2HA2 WORKING GROUP: AVHRR HRPT RESCUE



Peter Cornillon

Agenda ID: 2023.10.25_10.40

WGISS-56

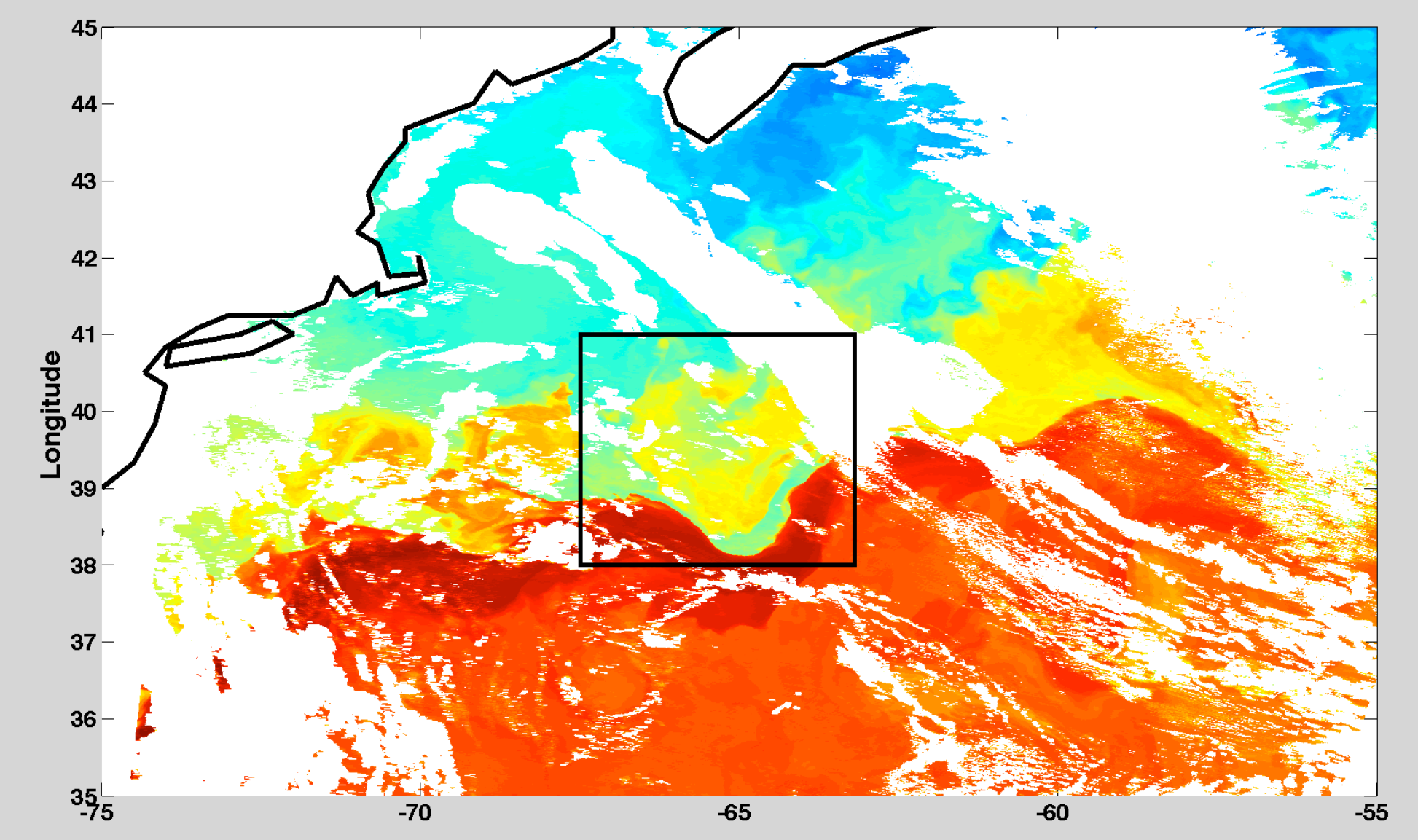
Paris, France (CNES)

24-26 October, 2023

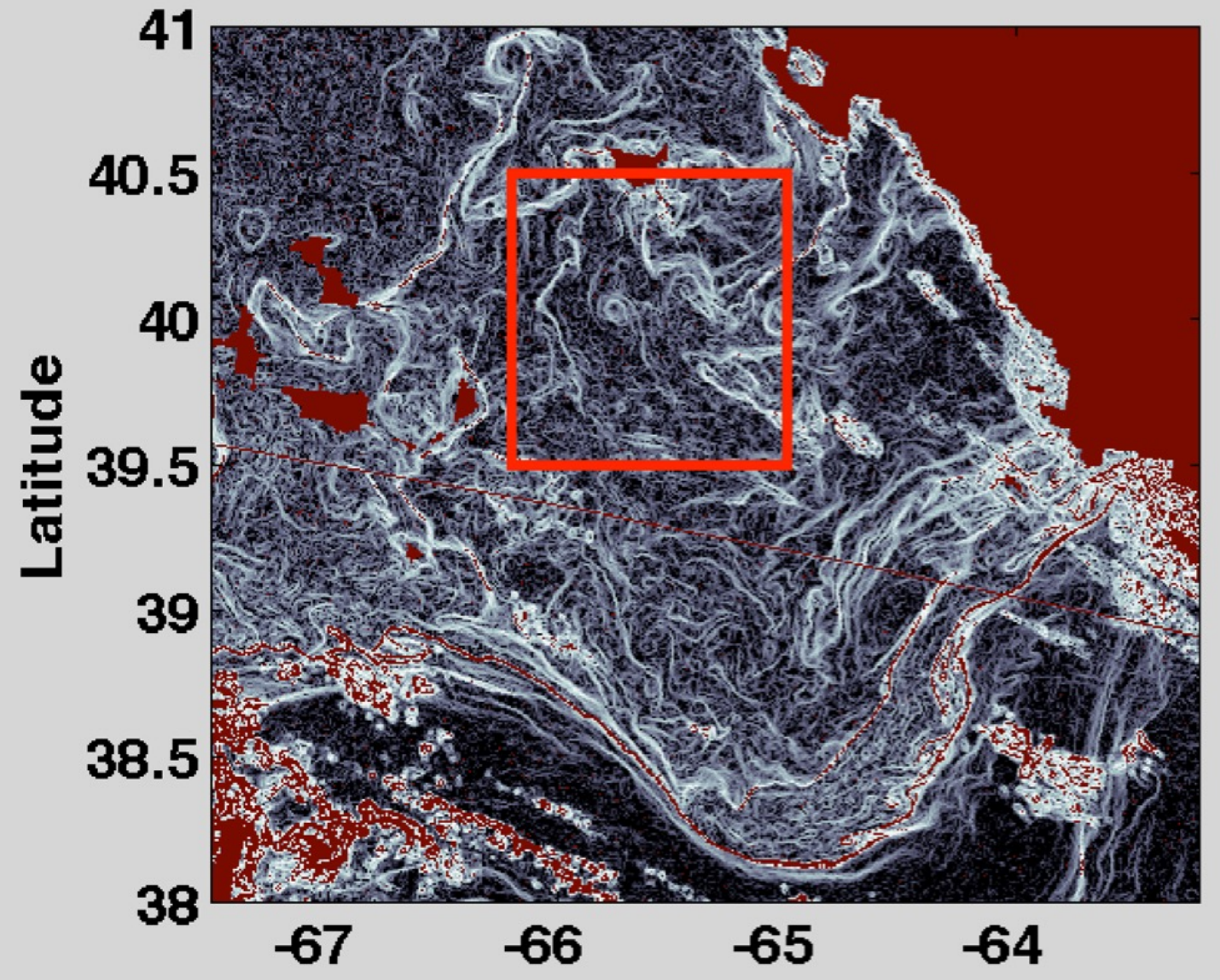
- ❖ The Rescue & Reprocessing of Historical AVHRR Archives (R2HA2) Working Group
- ❖ AVHRR HRPT archives to be saved.
- ❖ L1P – a consistent format for recovered AVHRR HRPT data.



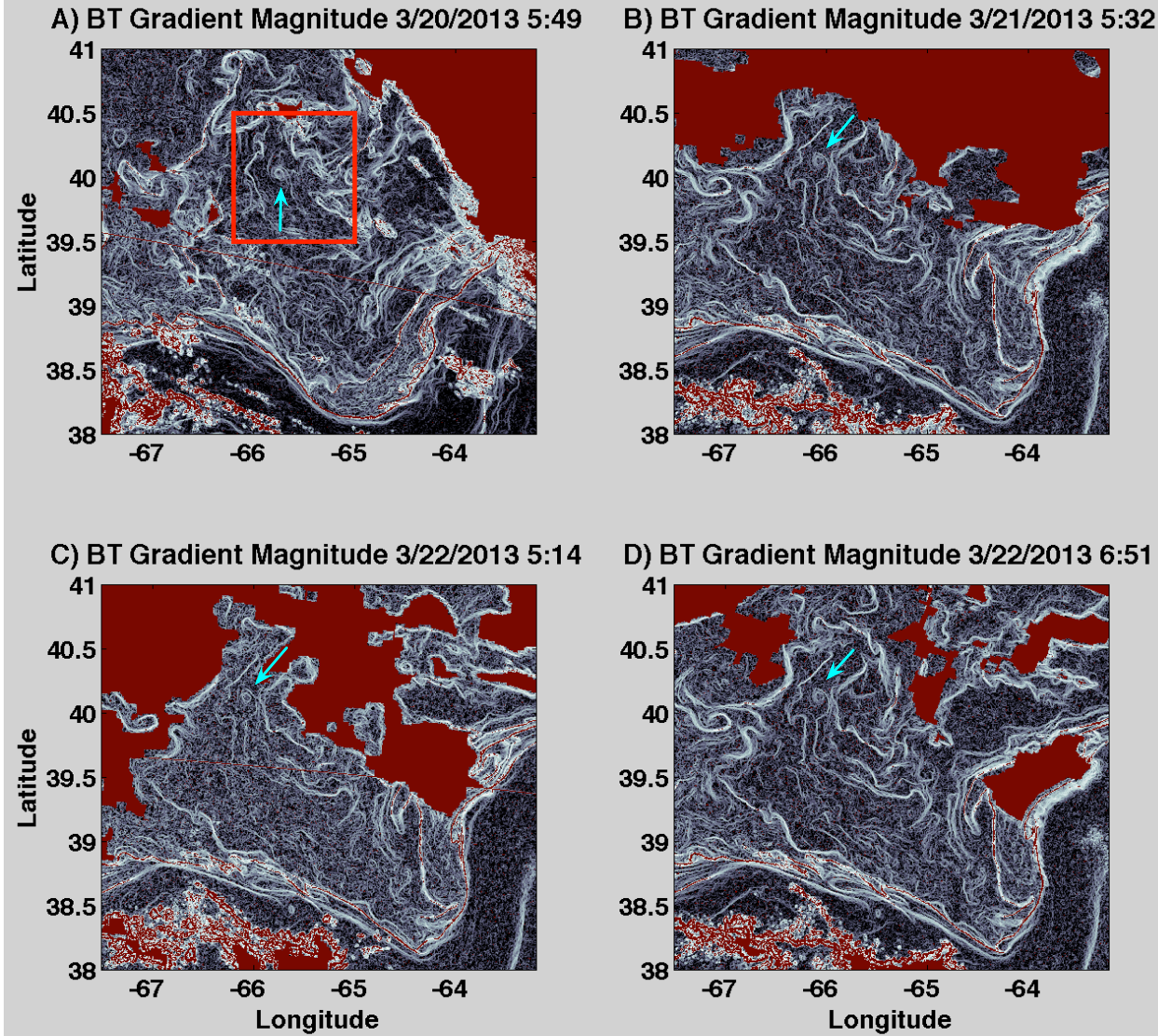
SELECTED SHORTS



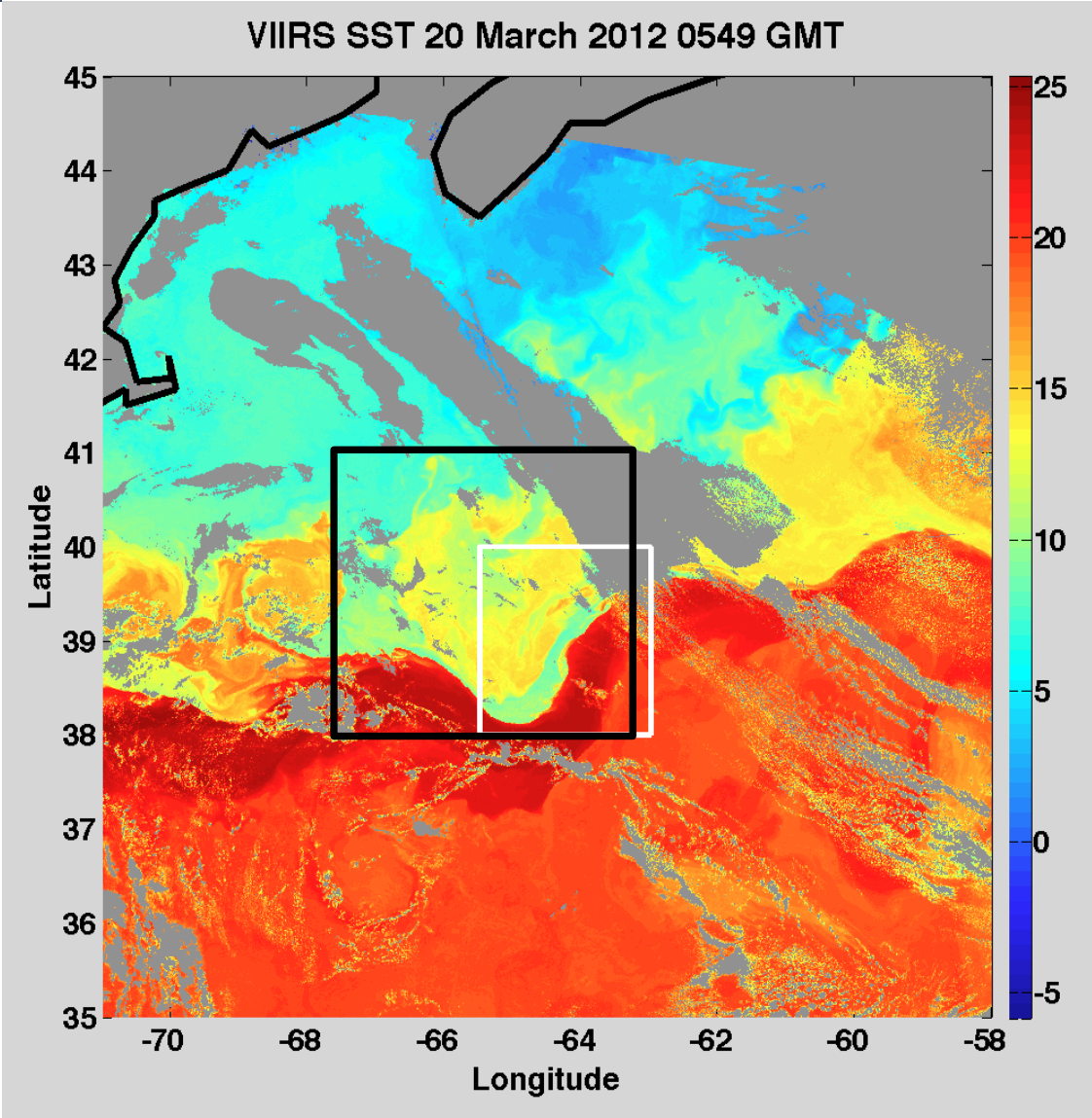
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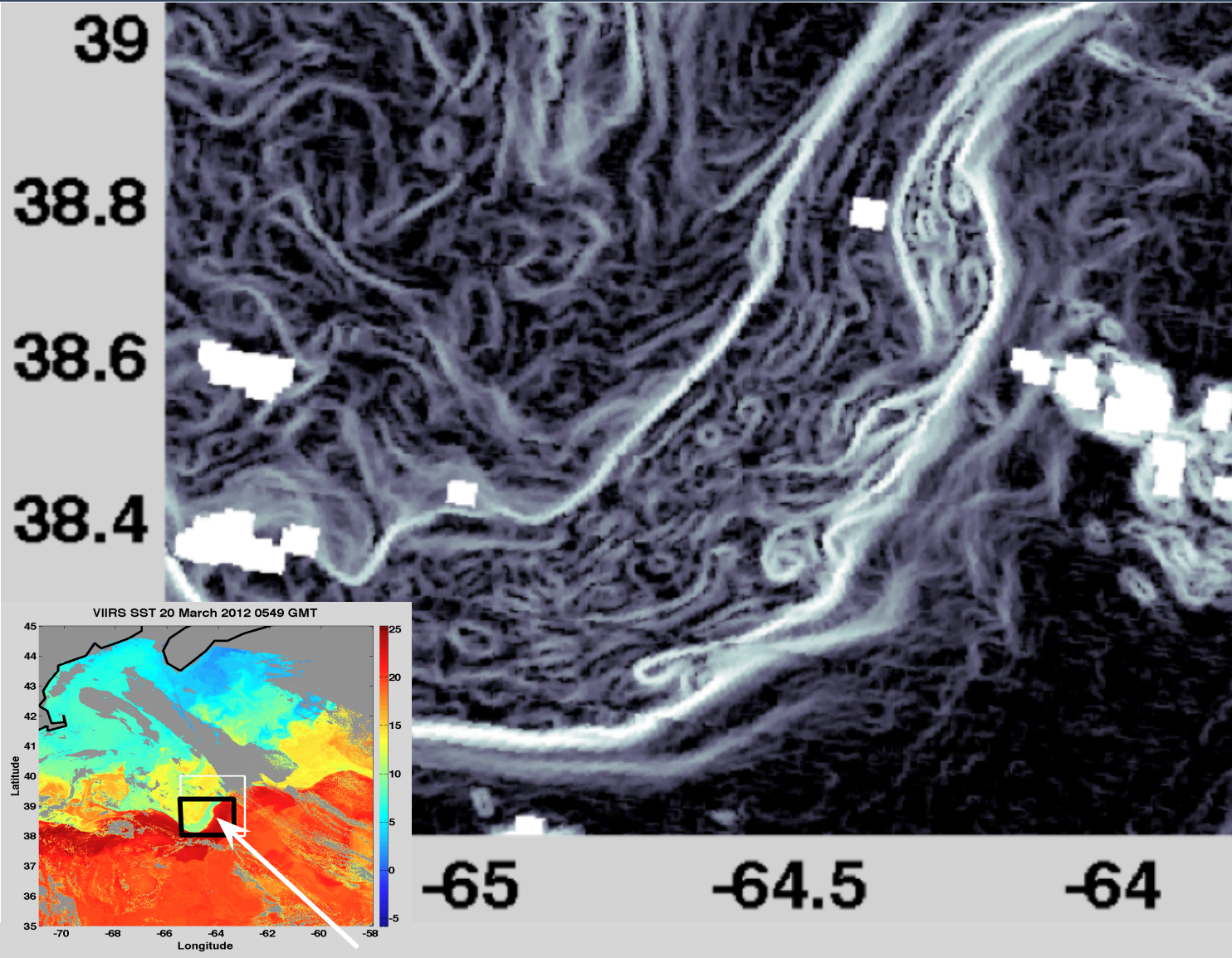
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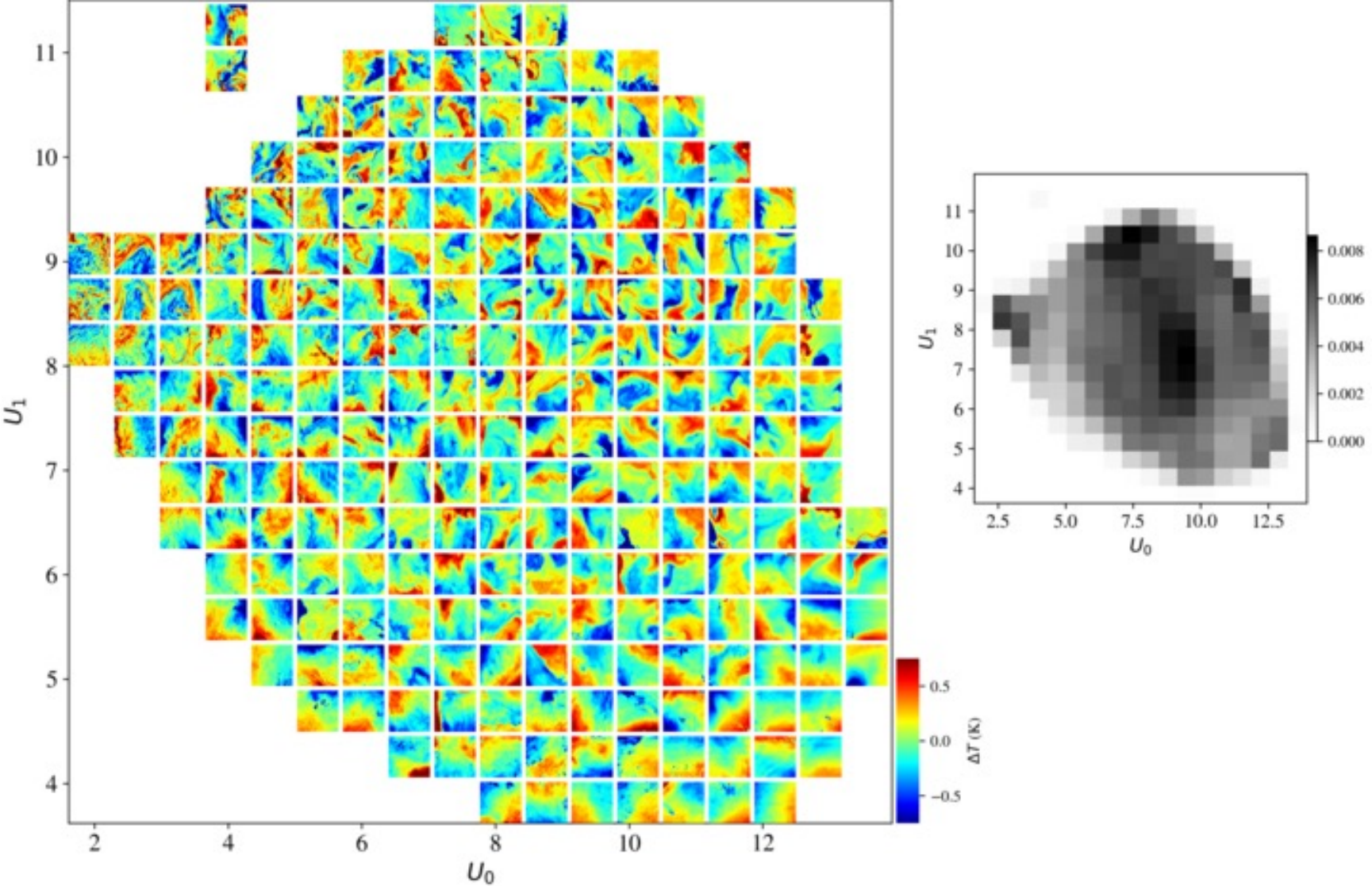
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SELECTED SHORTS

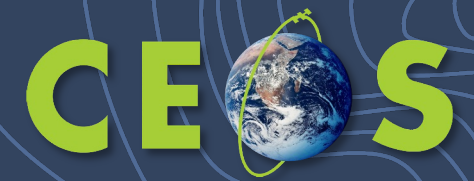


THE MAIN ATTRACTION





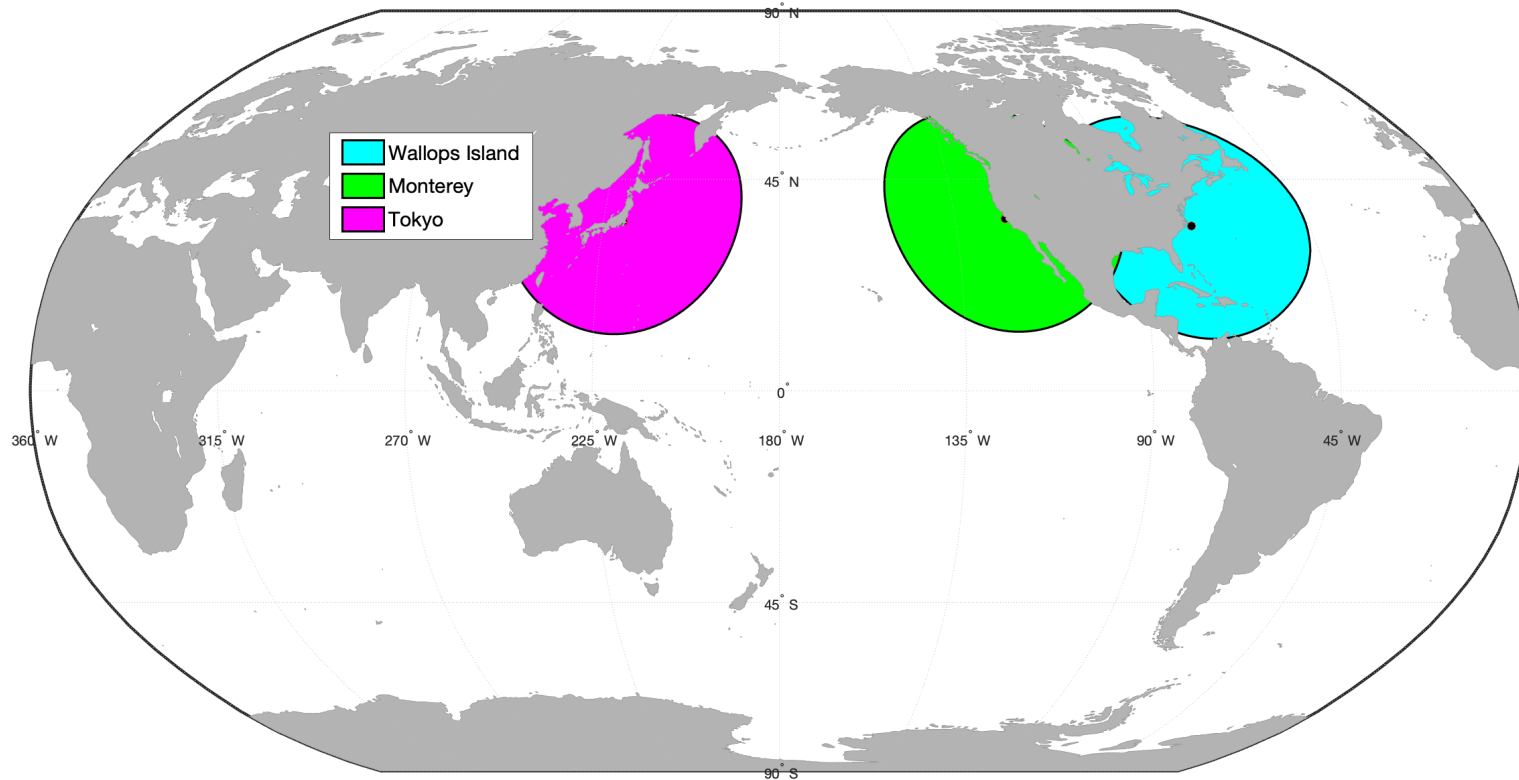
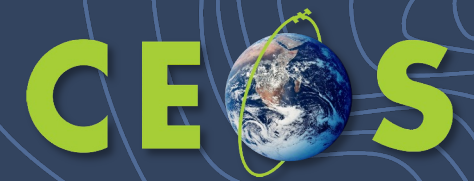
- ❖ The R2HA2 was a GHRSSST working group formed in 2011.
- ❖ It remained active until about 2014.
- ❖ Although, I've continued to pursue data rescue efforts.



❖ OBJECTIVES

- Identify historical archives (pre-2000) of AVHRR HRPT and LAC data
 - Copy data from historical archives to a central place.
 - Identify a central assembly center(s) CAC,
 - Define if/how contributions are to be stitched together - to be done at the CAC
- Identify where the reprocessing is to be performed
 - Determine how to do the navigation
 - Define the SST algorithm to be used to reprocess.
- Define a format (L1P) in which the data are to be stored,
 - Determine how to handle the navigation information.

AVHRR HRPT ARCHIVES: RECEIVING STATIONS





- ❖ Receiving station: University of Tokyo, Japan
- ❖ Obtained from: Prof. Takagi, University of Tokyo, Japan
- ❖ Current location of data: U. Rhode Island, USA - **Unique**
- ❖ Format: ?, close to NOAA standard
- ❖ Archive Content ~17,000 granules :
 - N07 11/11/1983-01/11/1985 — 597 files — 28.37 GB
 - N09 01/14/1985-11/08/1988 — 3,310 files — 143.04 GB
 - N11 11/09/1988-09/22/1994
 - N11 04/09/2000-04/10/2000 — 5,584 files — 224.46 GB
 - N14 01/28/1995-5/31/2000 — 7,325 files — 342.26 GB



- ❖ Receiving station: California, USA
- ❖ Obtained from: Prof. Strub, Oregon State University, USA
- ❖ Current location of data: U. Rhode Island, USA – **Unique (?)**
- ❖ Format: SEASPACE
- ❖ Archive Content ~7,000 granules :
 - N09 09/22/1994-03/23/1995 — 321 files — 8 GB
 - N11 02/04/1992-09/14/1993 — 1,844 files — 50.96 GB
 - N14 03/23/1995-11/11/2001 — 4,615 files — 139.28 GB
 - N15 01/26/2000-12/31/2001 — 756 files — 25.64 GB



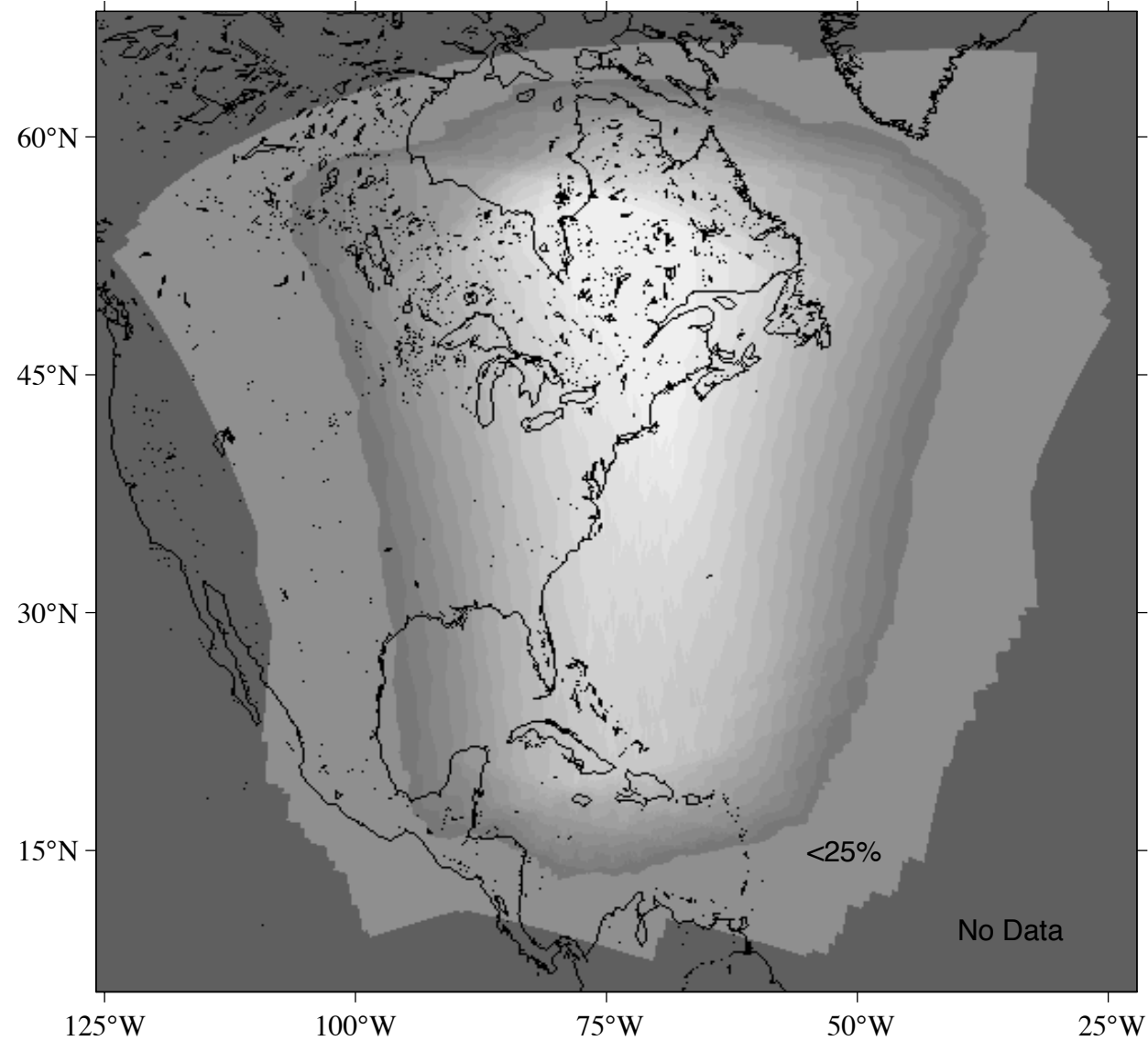
- ❖ Receiving station: Monterey, California, USA
- ❖ Obtained from: CLASS, USA
- ❖ Current location of data: U. Rhode Island, USA
- ❖ Format: CLASS
- ❖ Archive Content ~42,000 granules :
 - N15 01/17/1999-07/24/2000 — 1,900 files — 66.35 GB
 - 04/03/2002-10/09/2002 — 621 files — 25.53 GB
 - 04/06/2007-04/08/2007 — 16 files — 0.61 GB
 - 02/11/2011-06/30/2015 — 3,913 files — 106.33 GB
 - N16 04/09/2001-10/05/2005 — 5,526 files — 260.76 GB
 - 02/11/2011-06/06/2014 — 3,700 files — 178.08 GB
 - N17 10/16/2002-04/10/2013 — 11,220 files — 450.59 GB
 - N18 10/06/2005-06/30/2015 — 10,705 files — 522.82 GB
 - N19 02/11/2011-06/30/2015 — 4,931 files — 239.37 GB



- ❖ Receiving station: Wallops Island, VA, USA
- ❖ Obtained from: UMiami, USA
- ❖ Current location of data: U. Rhode Island, USA - **Unique**
- ❖ Format: SCRIPPS
- ❖ Archive Content ~22,000 granules :
 - N07 07/09/1981-12/31/1984 — 3,188 files — 148.98 GB
 - N09 01/01/1985-11/27/1988
 - N09 09/03/1994-04/28/1995 — 3,827 files — 184.09 GB
 - N11 11/01/1988-09/12/1994 — 7,057 files — 330.00 GB
 - N14 01/18/1995-12/31/2000 — 7,331 files — 318.45 GB
 - N15 06/12/1998-11/05/1998 — 419 files — 19.26 GB
 - N16 01/01/2001-10/06/2001 — 345 files — 18.71 GB

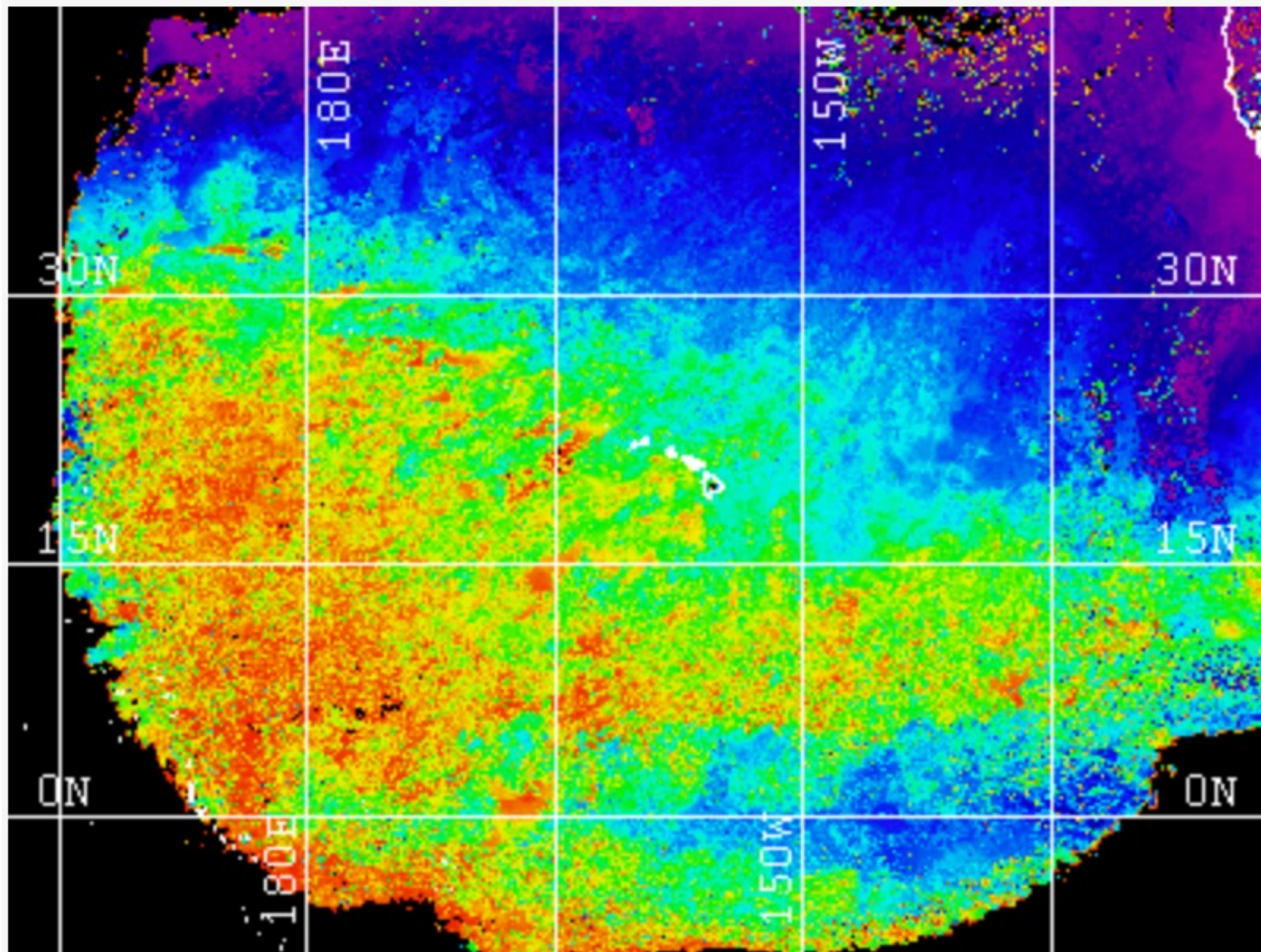


- ❖ Receiving station: Monterey, California, USA
- ❖ Obtained from: CLASS, USA
- ❖ Current location of data: U. Rhode Island, USA
- ❖ Format: CLASS
- ❖ Archive Content ~121,000 granules:
 - N07 07/09/1981-11/24/1984 — 618 files — 27.45 GB
 - N09 04/08/1985-11/07/1988 — 4,795 files — 206.62 GB
 - N10 10/21/1986-09/16/1991 — 6,554 files — 264.07 GB
 - N11 09/24/1988-03/10/1995 — 9,116 files — 359.04 GB
 - N12 05/14/1991-10/10/2006 — 14,220 files — 637.49 GB
 - N14 12/30/1994-10/10/2006 — 13,520 files — 604.21 GB
 - N15 10/26/1998-06/30/2015 — 21,446 files — 997.14 GB
 - N16 09/21/2000-06/04/2014 — 15,737 files — 677.85 GB
 - ...

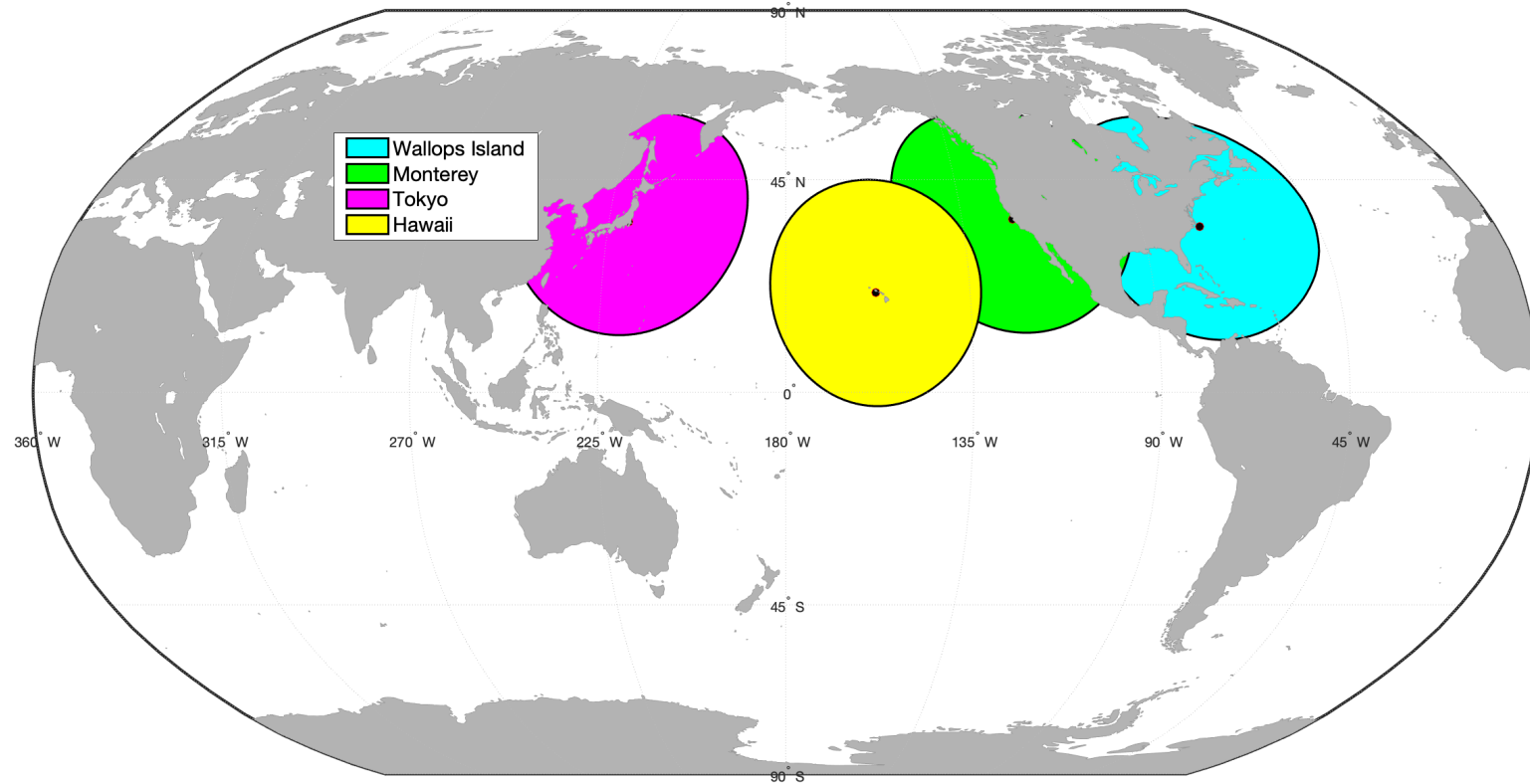
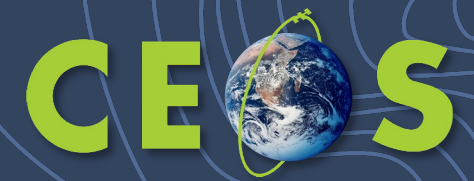


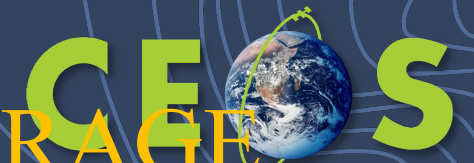


- ❖ Receiving station: U. Hawaii, Hawaii, USA
- ❖ Not yet obtained: Prof. Flament, U. Hawaii, USA
- ❖ Current location of data: U. Hawaii, USA
- ❖ Format: SEASPACE
- ❖ Archive Content ~10,000 granules, 1990-1999:
 - N07 02/07/1998-27/12/1999
 - N09 14/11/1994-28/2/1995
 - N11 28/11/1991-14/11/1994
 - N12 19/10/1991-27/12/1999
 - N14 05/01/1995-27/12/1999

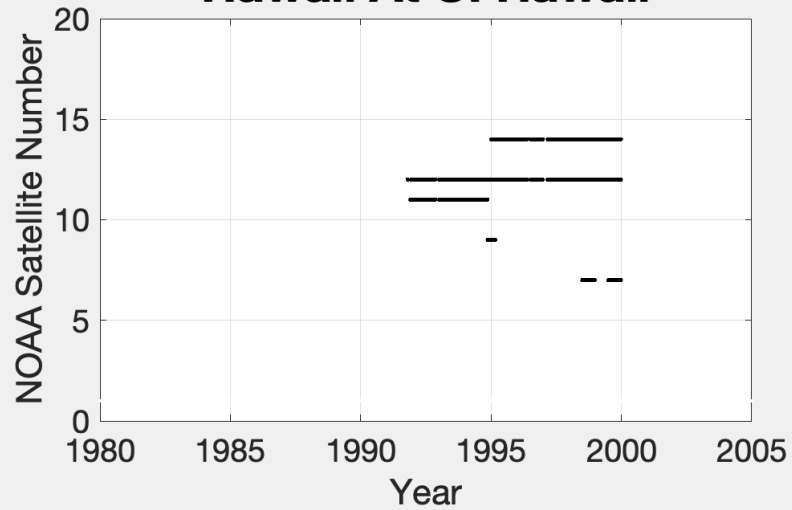


AVHRR HRPT ARCHIVES: RECEIVING STATIONS

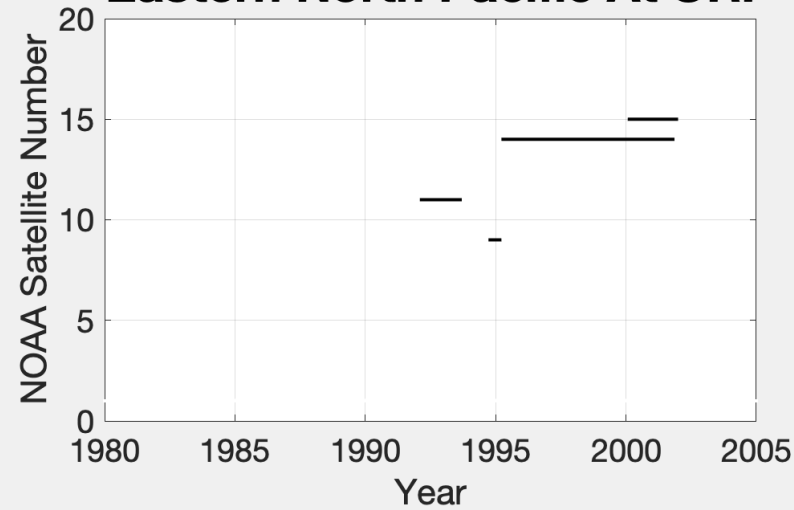




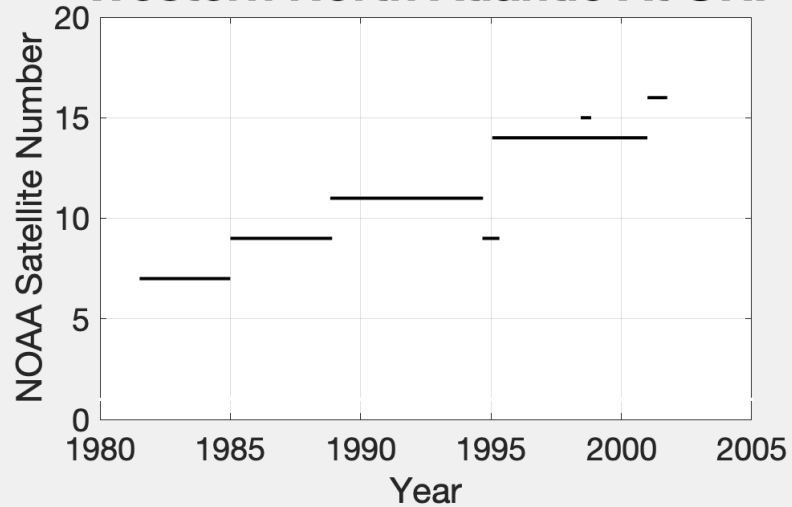
Hawaii At U. Hawaii



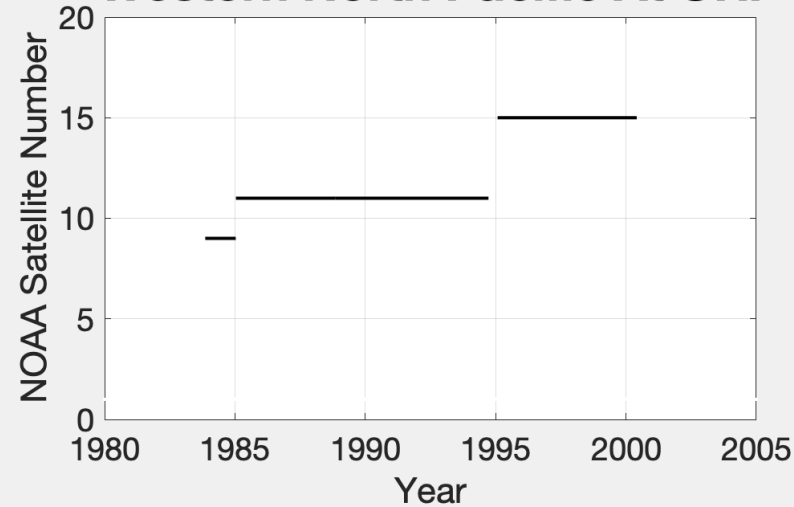
Eastern North Pacific At URI

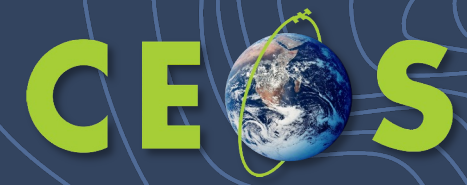


Western North Atlantic At URI

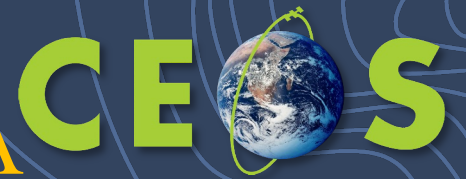


Western North Pacific At URI



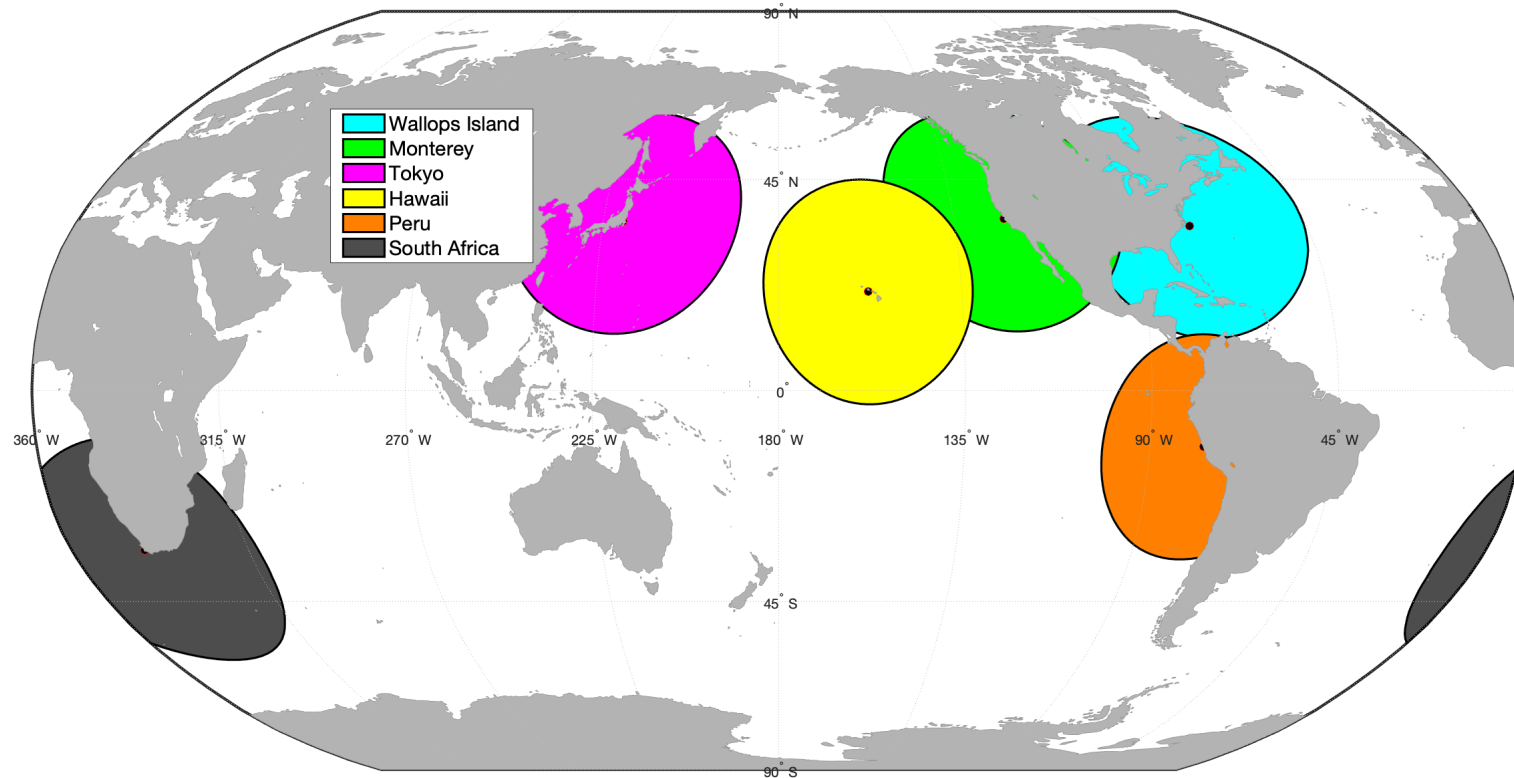


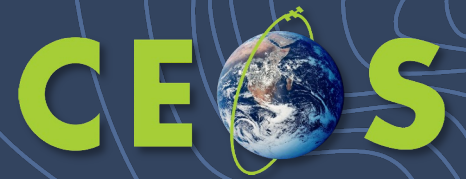
- ❖ Receiving station: U. Hawaii, Hawaii, USA (5°N-30°S, 68°-90°W)
- ❖ Obtained from: Luis Escudero Herrera, Instituto del Mar del Perú
- ❖ Current location of data: U. Rhode Island, USA
- ❖ Format: ? NOAA
- ❖ Archive Content ~5,500 granules, 1998-2007:
 - 1998 02/09/1998-12/31/1998 — 270 files — 8.86 GB
 - 1999 01/01/1999-12/31/1999 — 1,157 files — 32.03 GB
 - 2000 01/05/2000-12/31/2000 — 955 files — 28.26 GB
 - 2003 10/02/2003-12/31/2003 — 226 files — 16.36 GB
 - 2004 01/01/2004-12/15/2004 — 865 files — 61.62 GB
 - 2005 01/19/2005-12/31/2005 — 1,300 files — 87 GB
 - 2006 01/01/2006-02/20/2006 — 300 files — 22.95 GB
 - 2007 01/01/2007-07/17/2007 — 713 files — 46.76 GB



- ❖ Receiving station: South Africa
- ❖ Not yet obtained: Cristo Whittle
- ❖ Current location of data: U. Rhode Island, USA
- ❖ Format: ? NOAA
- ❖ Archive Content ~7,130 granules, 392.41 GB

AVHRR HRPT ARCHIVES: ALL RECEIVING STATIONS DISCUSSED





- ❖ R2HA2 began work on an L1P format for acquired granules.
- ❖ L1P fields fall in three classes:
 - Basic telemetry fields. All of will be captured
 - Fields added by the data provider; e.g.,
 - Calibration information.
 - Latitude, longitude fields.
 - Fields added to the L1a or L1b data stream; e.g.,
 - Year - this information is not in the telemetry stream.
 - Spacecraft ID - IDs recycled. We will add a unique GHRSSST spacecraft ID.
 - Navy high precision ephemerides.
 - Clock corrections.

