Hypoxia Data Management and Portal

Kirsten Larsen, NCEI

Julie Bosch, NCEI

Matt Howard, GCOOS

CHAMP, MSU at Stennis Space Center

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Hypoxia Data Flowchart

DAC – Data Assembly Center
GCOOS – Gulf of Mexico Coastal
        Ocean Observing System
GTS – Global Telecommunication
        Service
IOOS – Integrated Ocean
        Observing System
LDWF – Louisiana Dept Wildlife &
        Fisheries
NCEI – National Centers for
        Environmental Information
NDBC – National Buoy Center
OMAO – NOAA Office of Marine
        and Aviation Operations
SEAMAP – Southeast Area
        Monitoring and
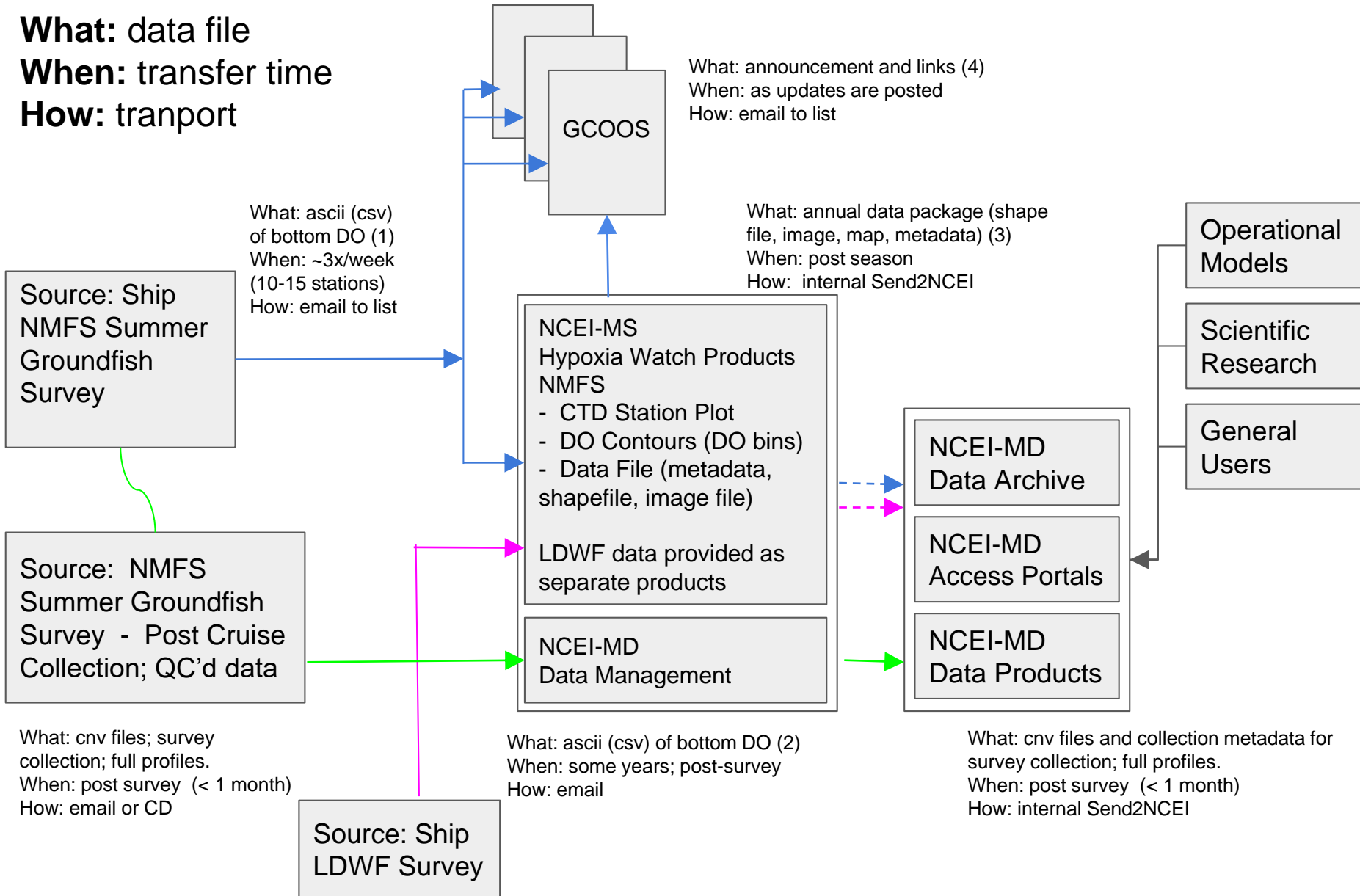   Assessment Program
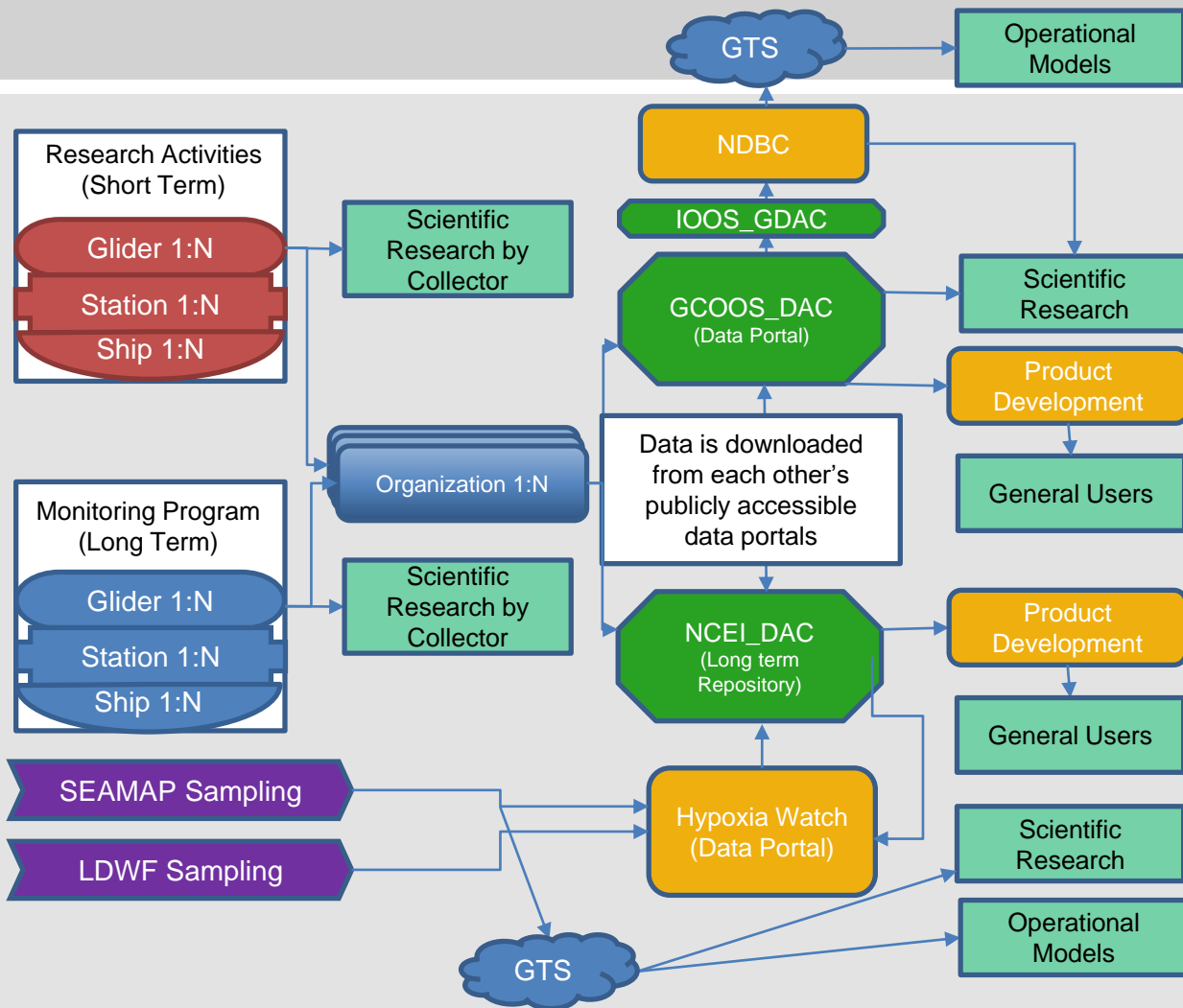
Data Management Recommendations

- Separate flow charts for each data stream: glider, buoys, ship, etc.
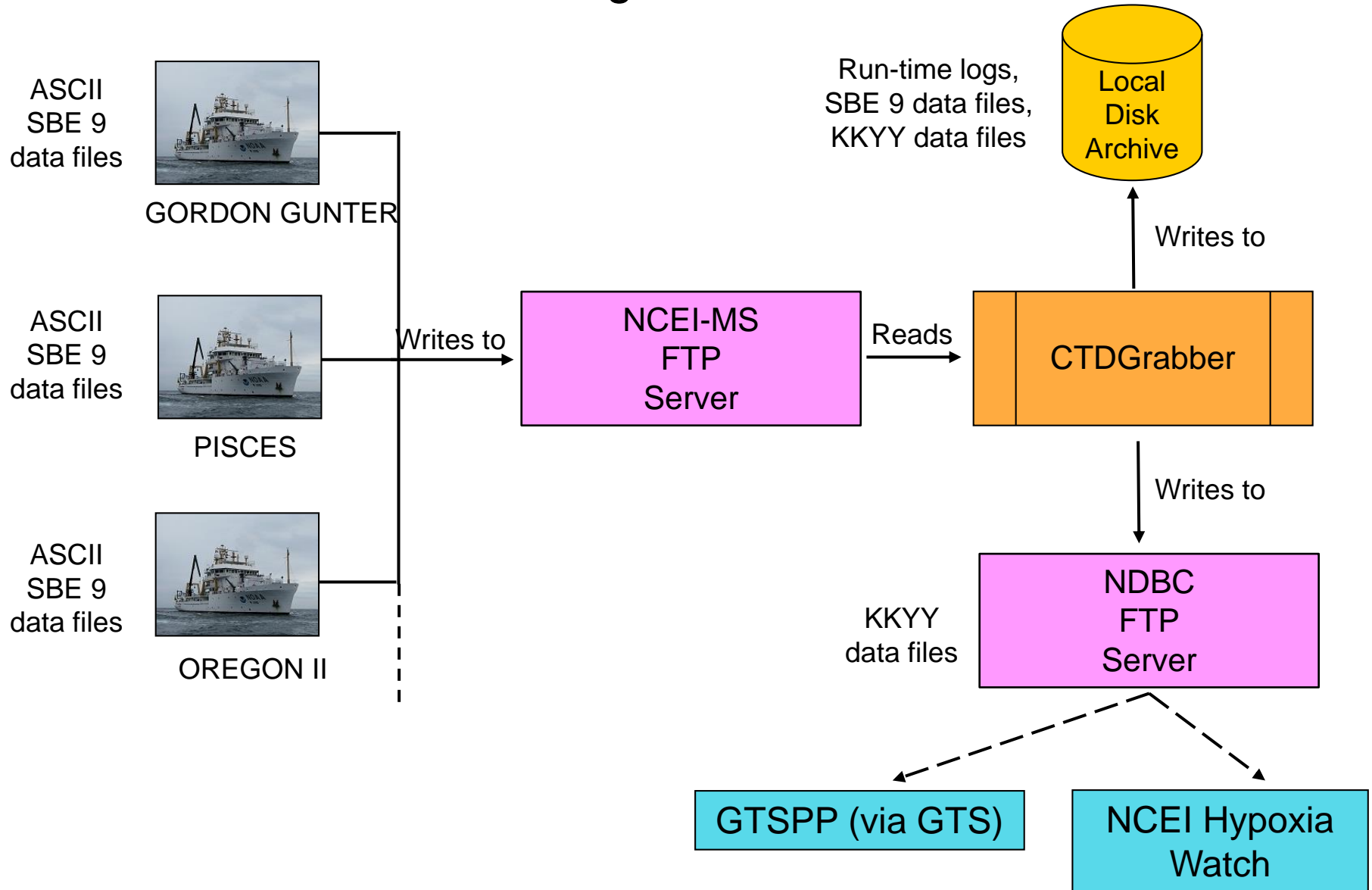- Currently oxygen data does NOT transmit out on GTS

HypoxiaWatch Example

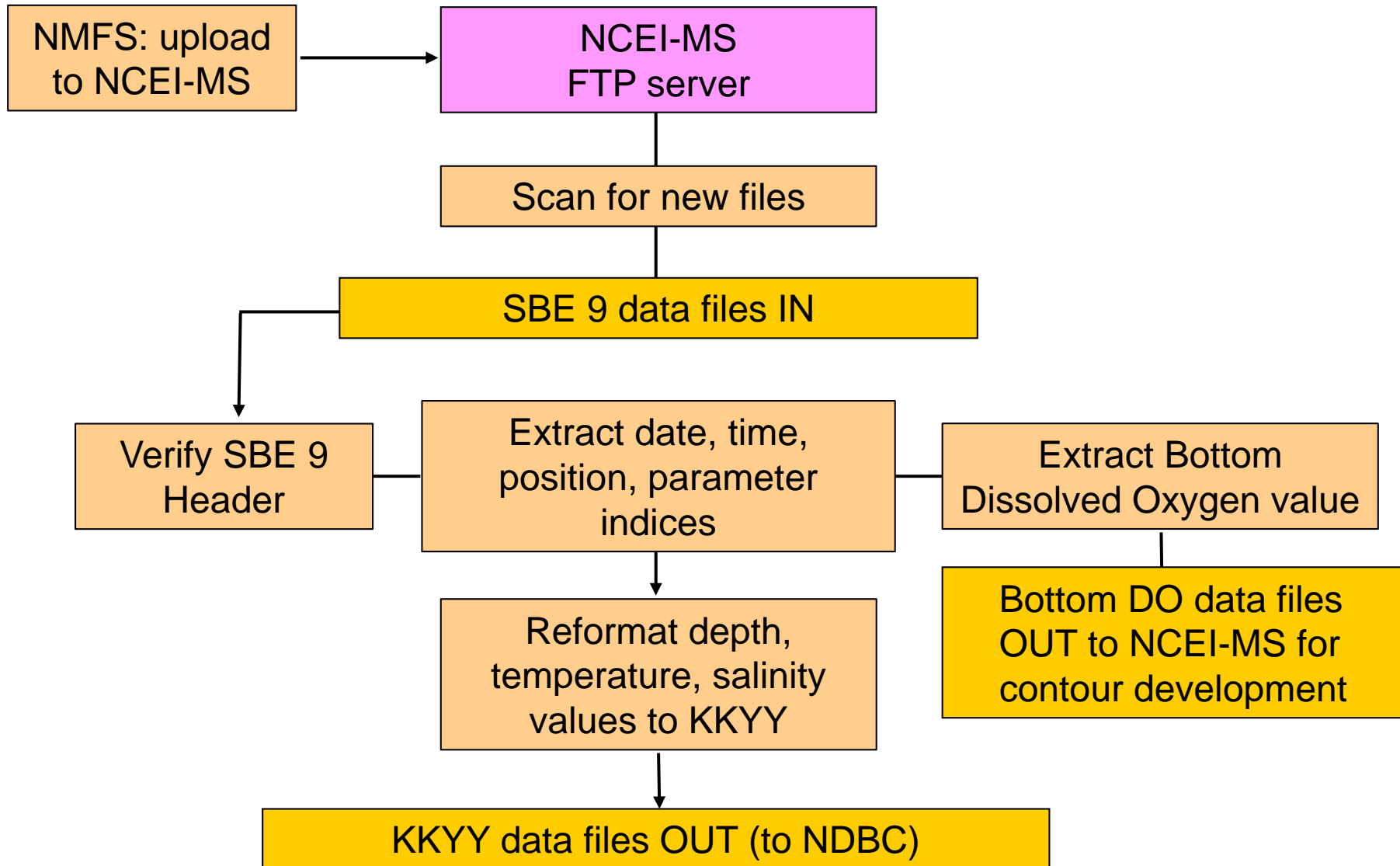**What:** data file
When: transfer time
How: tranport

GCOOS

What: announcement and links (4)
When: as updates are posted
How: email to list

What: ascii (csv)
of bottom DO (1)
When: ~3x/week
(10-15 stations)
How: email to list

What: annual data package (shape
file, image, map, metadata) (3)
When: post season
How: internal Send2NCEI

Operational
Models

Source: Ship
NMFS Summer
Groundfish
Survey

NCEI-MS
Hypoxia Watch Products
NMFS
- CTD Station Plot
- DO Contours (DO bins)
- Data File (metadata,
shapefile, image file)

LDWF data provided as
separate products

Scientific
Research

General
Users

NCEI-MD
Data Archive

Source: NMFS
Summer Groundfish
Survey - Post Cruise
Collection; QC'd data

NCEI-MD
Access Portals

NCEI-MD
Data Management

NCEI-MD
Data Products

What: cnv files; survey
collection; full profiles.
When: post survey (< 1 month)
How: email or CD

What: ascii (csv) of bottom DO (2)
When: some years; post-survey
How: email

What: cnv files and collection metadata for
survey collection; full profiles.
When: post survey (< 1 month)
How: internal Send2NCEI

Source: Ship
LDWF Survey

CTDGrabber
Logical View

CTDGrabber
Process View

NMFS: upload to NCEI-MS → NCEI-MS FTP server

NCEI-MS FTP server → Scan for new files

Scan for new files → SBE 9 data files IN

SBE 9 data files IN → Verify SBE 9 Header

Verify SBE 9 Header — Extract date, time, position, parameter indices — Extract Bottom Dissolved Oxygen value

Extract Bottom Dissolved Oxygen value → Bottom DO data files OUT to NCEI-MS for contour development

Extract date, time, position, parameter indices → Reformat depth, temperature, salinity values to KKYY

Reformat depth, temperature, salinity values to KKYY → KKYY data files OUT (to NDBC)

NOAA Fleet CTD Data

CTD Grabber

– NCEI-NMFS partnership
– Push NMFS CTDs to GTS real time
– Ingested into operational ocean models for immediate survey support
– Only in GoM currently, easily expanded to other ships

CTD Data Assembly Center

– NCEI-OMAO partnership
– New (and evolving)
– Processing and QC of CTD data collected by NOAA fleet
– Delayed publishing to GTS

Data Management Recommendations

- Separate flow charts for each data stream: glider, buoys, ship, etc.
- Currently oxygen data does NOT transmit out on GTS

Gliders:
- Full set (full resolution, all parameters) of post mission data delivered to GCOOS for display on Gandalf
- Full set sent to NCEI
    - Working on data transmission of full set to NCEI through the IOOS Glider DAC
- NCEI – how to archive full set along with low-resolution near real-time profiles

Observing systems:
- GCOOS is willing to ingest any data stream sent to them

Example: Glider, near real-time

GTS

NDBC

Source:
Glider
(Glider
Operators)

GCOOS

IOOS National
Glider DAC

Operational
Models

Scientific
Research

NCEI-MD
Data Archive

General
Users

NCEI-MD
Access Portals

Product
Development

NCEI-MD
Data Products
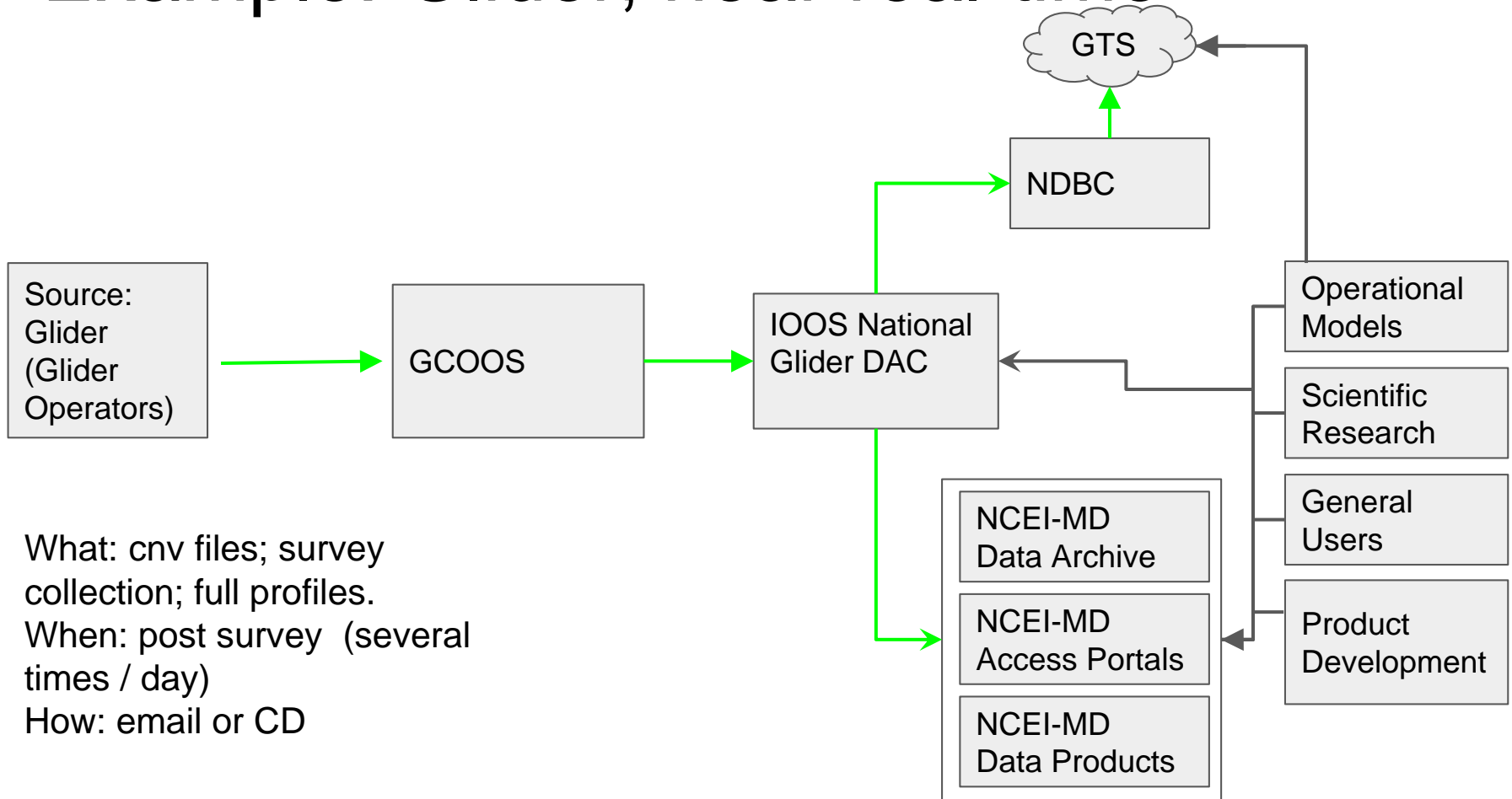
What: cnv files; survey
collection; full profiles.
When: post survey (several
times / day)
How: email or CD

What: netCDF files
When: Per deployment
How: automated
transfer checks on a
daily basis

Hypoxia Data Portal

<u>Challenge:</u>
- No single location to find dissolved oxygen full profile or bottom data

<u>Location options:</u>
- GCOOS – easy to find and use, not currently compiled into a uniform product/database
- NCEI – long term storage

<u>Questions:</u>
- Historical data?
  - TAMU has oxygen measurements from many studies – include?
- How to sort, display, store data? (i.e. cruise / cast vs compiled)

<u>Goals:</u>
- Database in an ERDDAP server for ease of data transfer
- Others?

State Hypoxia Data

Discussion:

How do the States currently provide access to and archive their data?

- Florida
- Alabama
- Mississippi
- Louisiana
- Texas

Back up slides

HypoxiaWatch Example

(1) **Example data file from ship**

Ship	Cruise	DateUTC	TimeUTC	Station	Cast	LongDeg	LongMin	LongHem	LatDeg
	LatMin	LatHem	Longitude	Latitude	WaterDepthM	SampleDepthM	OxMgL		
OREGON II	318	6/23/2016	1:02:10	107	1	93	59.82	W	28
	59.5	N	-93.997	28.991667		20.3	19	0.9321	
OREGON II	318	6/23/2016	2:36:05	108	1	93	48.41	W	28
	55.31	N	-93.806833	28.921833		22.8	22	2.3467	
OREGON II	318	6/23/2016	5:50:55	109	1	93	48.15	W	29
	9.14	N	-93.8025	29.152333		18.6	18	0.8374	

(2) **Example data file from LDWF**

Ship	Cruise	DateUTC	TimeUTC	Station	Cast	LongDeg	LongMin	LongHem	LatDeg
	LatMin	LatHem	Longitude	Latitude	WaterDepthM	SampleDepthM	OxMgL		
Point Sur	1601	6/7/2016	20:50:54	B192	1	90	29.97	W	28
	59.94	N	-90.4995	28.999	10.2		10		5.2049
Point Sur	1601	6/8/2016	0:17:53	W1402	1	90	20.86	W	28
	58.78	N	-90.347667	28.979667	13.7		14		0.5797

(3) **Data package content list**

(4) **Email package content list**