2021 2030 United Nations Decade of Ocean Science for Sustainable Development

**PICES Training Session #2**
**"International Data Management"**

# Data Management in the Republic of Korea

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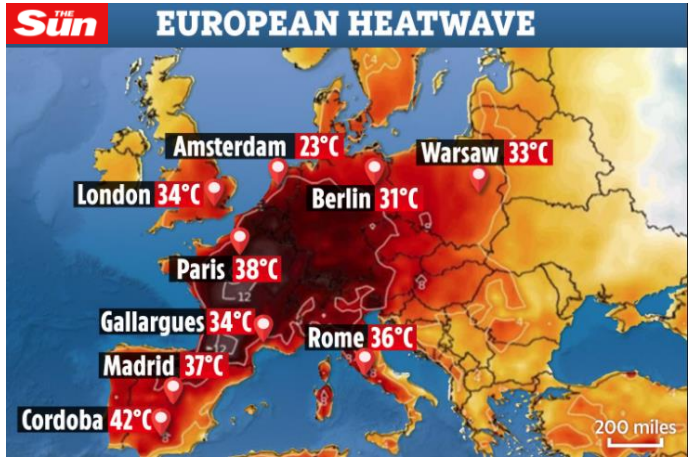
# Contents

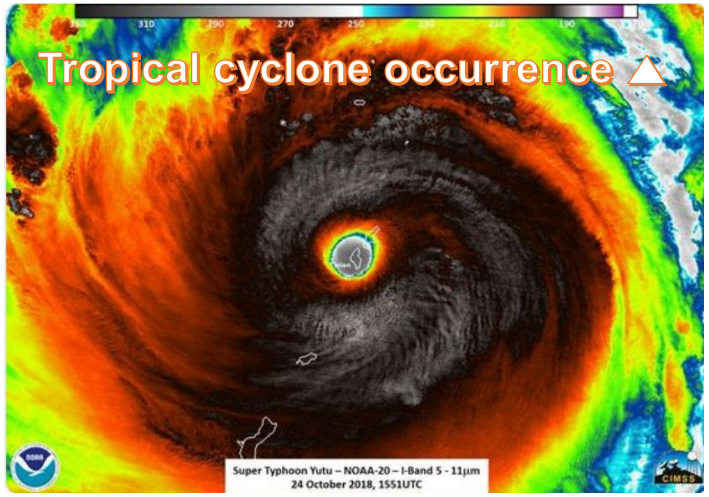
# 1. Importance of Ocean Data

**“Recent climate changes have had widespread impacts on human and natural systems.”**
**“Recent changes in the climate are widespread, rapid, and intensifying, and unprecedented in thousands of years”**

[IPCC AR5 & AR6, 2014 & 2022]

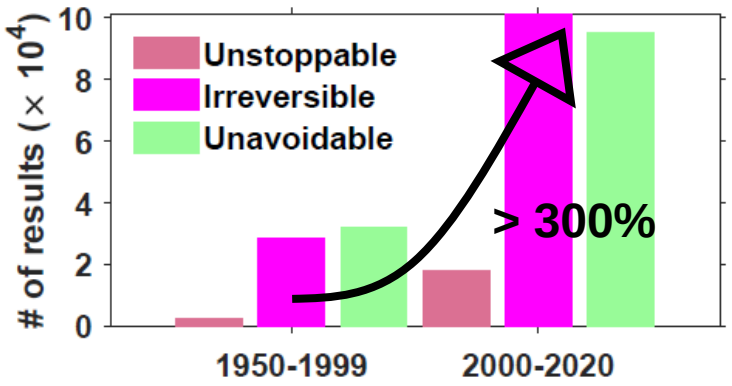




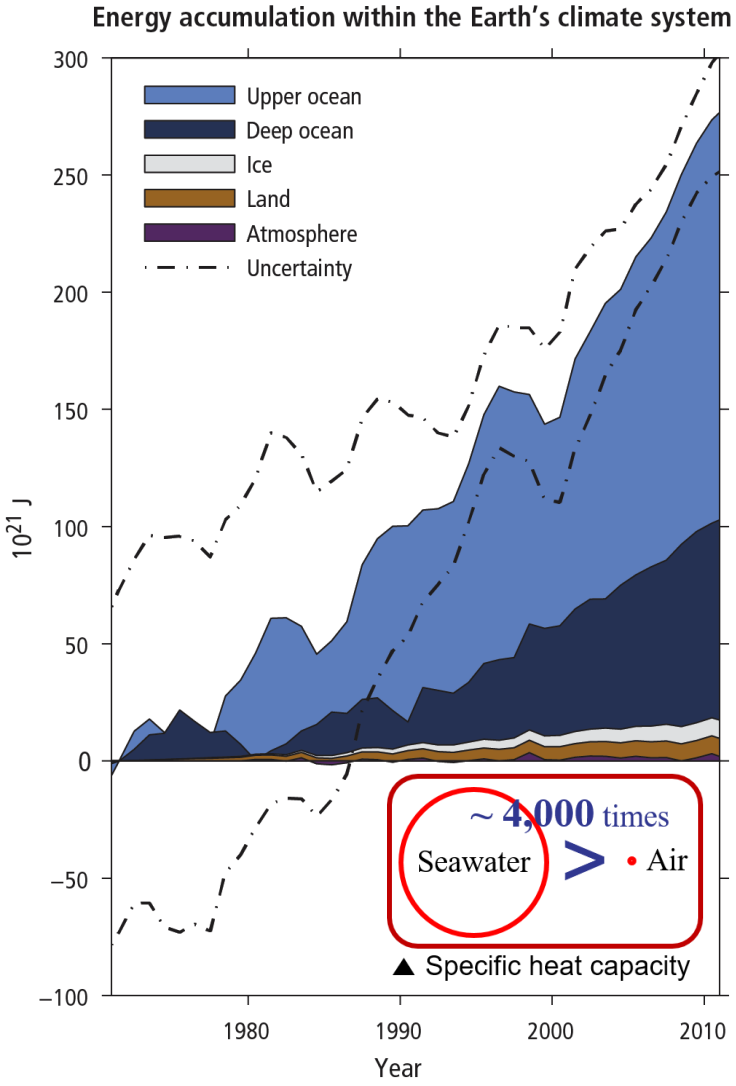





**Google Scholar search results ▼**
for ‘Unstoppable climate change’,
‘Irreversible climate change’,
and ‘Unavoidable climate change’



# “The ocean and cryosphere regulate the climate and weather on Earth” [SROCC, 2019]

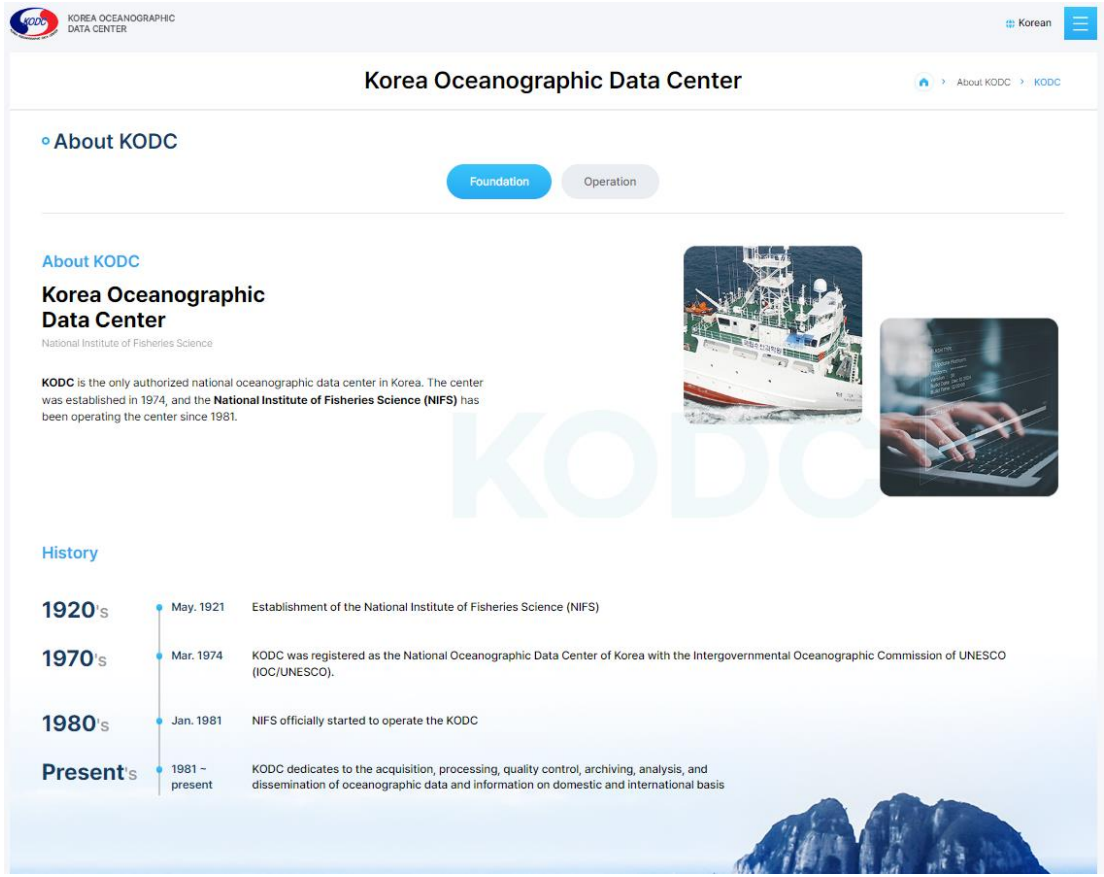




**- It is crucial to investigate ocean responses to climate change in recent times using in-situ observational data.**

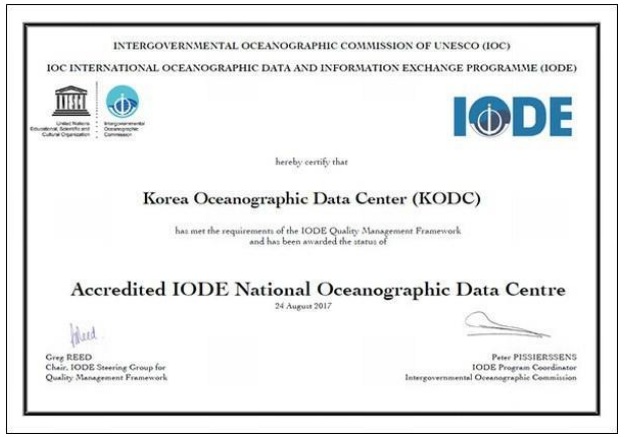
# 2. Various Practices of Data Management in the ROK

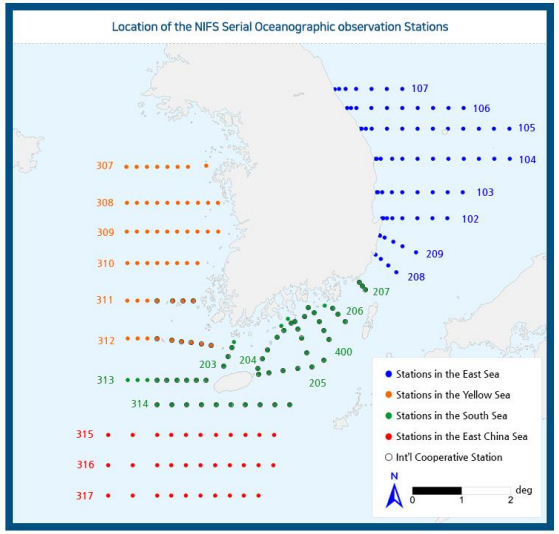
## 1) KODC (Korea Oceanographic Data Center; *https://www.nifs.go.kr/kodc/index.kodc*)



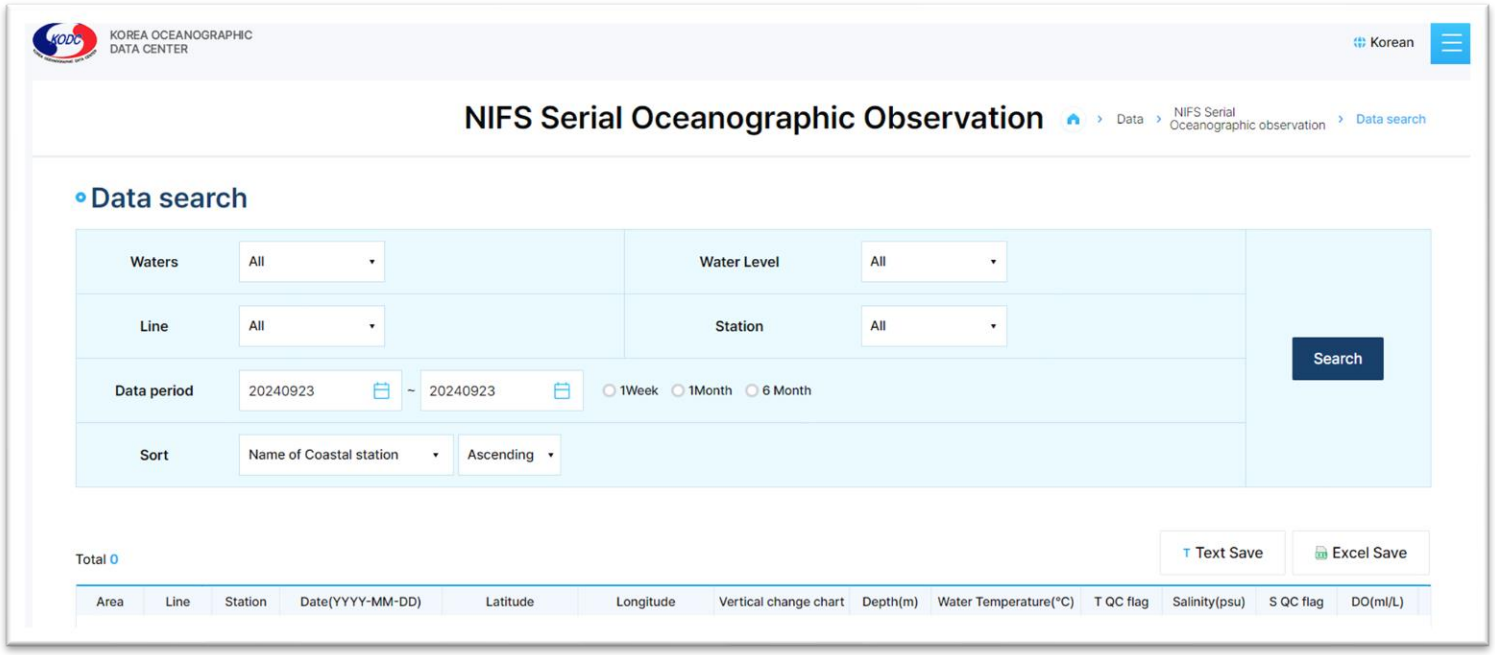

*Created by NIFS (National Institute of Fisheries Science)*

- World's 5th National Ocean Data Center accredited by the IOC (Intergovernmental Oceanographic Commission of UNESCO)




- NIFS (National Institute of Fisheries Science) conducts observations every two months (Feb., Apr., Jun., Aug., Oct., Dec.) in the Korean Marginal Sea.




- You are free to download the data obtained from 1968 to 2023.

- Data are only available at 15 standard depths (0, 10, 20, 30, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500 m) below 500 m.

- Data are quality-controlled according to the standard data processing methods and are provided with QC flags.

- To provide high-quality data, data management efforts continue by the *'Advancement of ocean observation, Diagnosis, and forecasting system customized for consumers'* research project (P.I. JJ Park (KNU)).

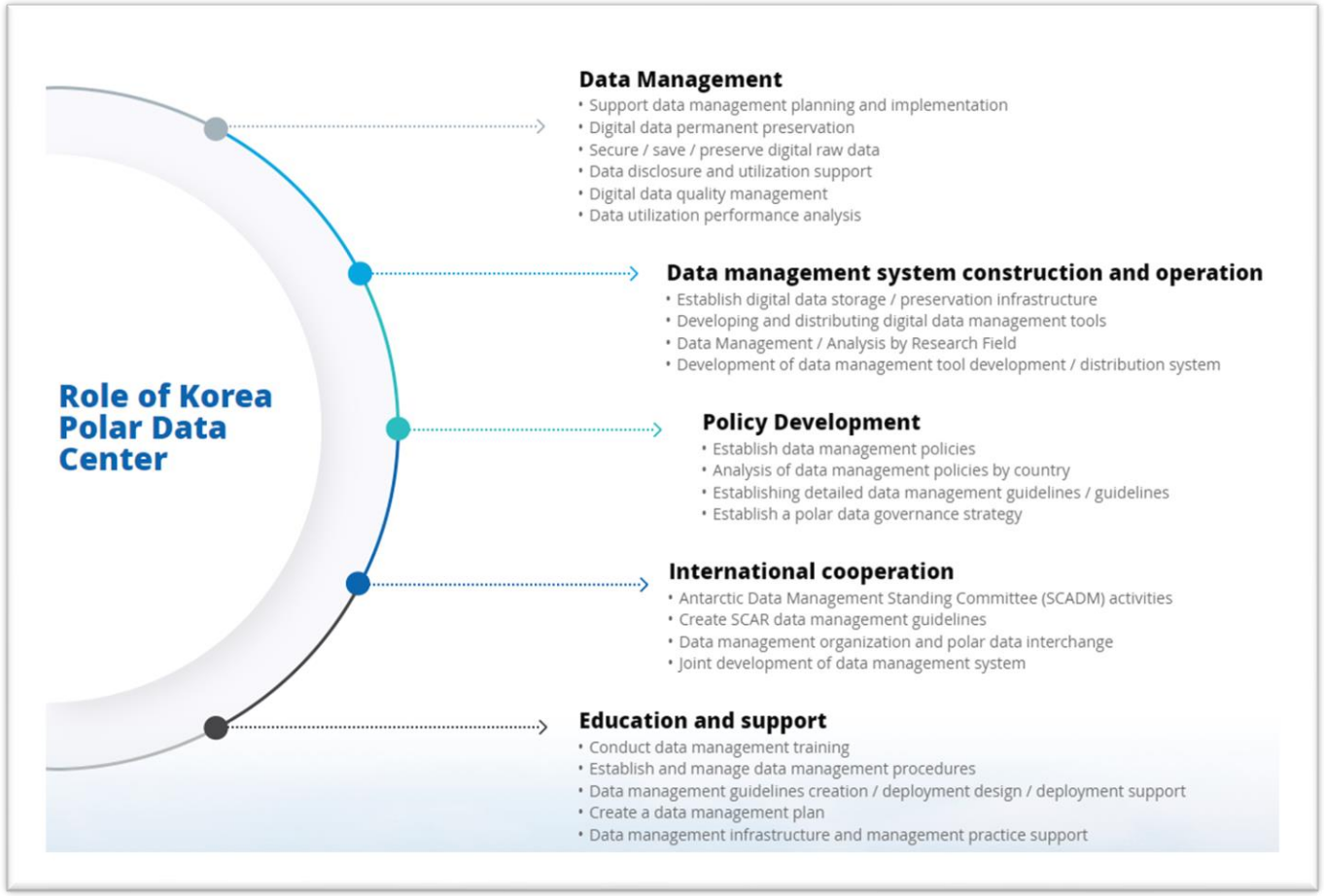
## QC information

### QC flag information

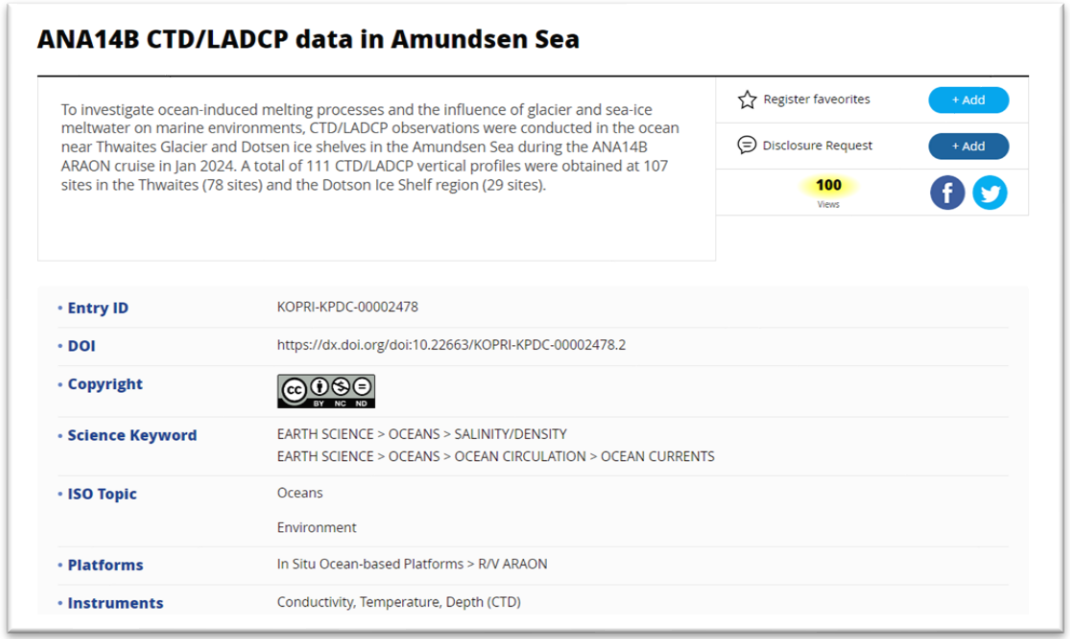
KODC assigns QC flags to the observation data based on UNESCO/IOC's recommended ocean data standards.

| QC Flag | Meaning | Definition |
|---|---|---|
| 1 | Good | Passed documented required QC tests |
| 2 | Not evaluated, not available or unknown | Used for data when no QC test performed or the information on quality is not available |
| 3 | Questionable/suspect | Failed non-critical documented metric or subjective test(s) |
| 4 | Bad | Failed critical documented QC test(s) or as assigned by the data provider |
| 9 | Missing data | Used as place holder when data are missing |

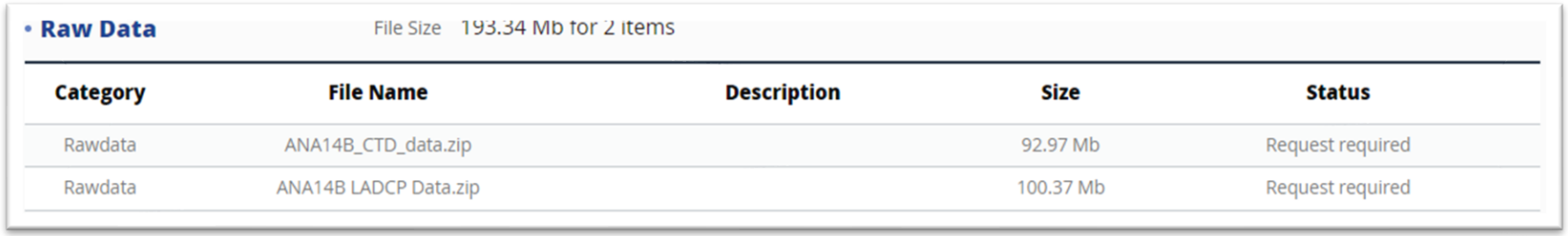
## 2) KPDC (Korea Polar Data Center; *https://kpdc.kopri.re.kr*)




- KOPRI (Korea Polar Research Institute) research team Upload metadata after obtaining data in Antarctica or Arctic (ex) through an Antarctic survey).




- Raw data are only provided upon request.



# 3. Challenges of Data Management in the ROK

## 1) KODC

- The Korean Marginal Sea is where military and political interests are intertwined.

- Data were collected with 24 Hz CTD (Conductivity-Temperature-Depth) sensors, but these high-resolution profiles could be used for military purposes.
▶ Difficult to manage the raw data or high-resolution data

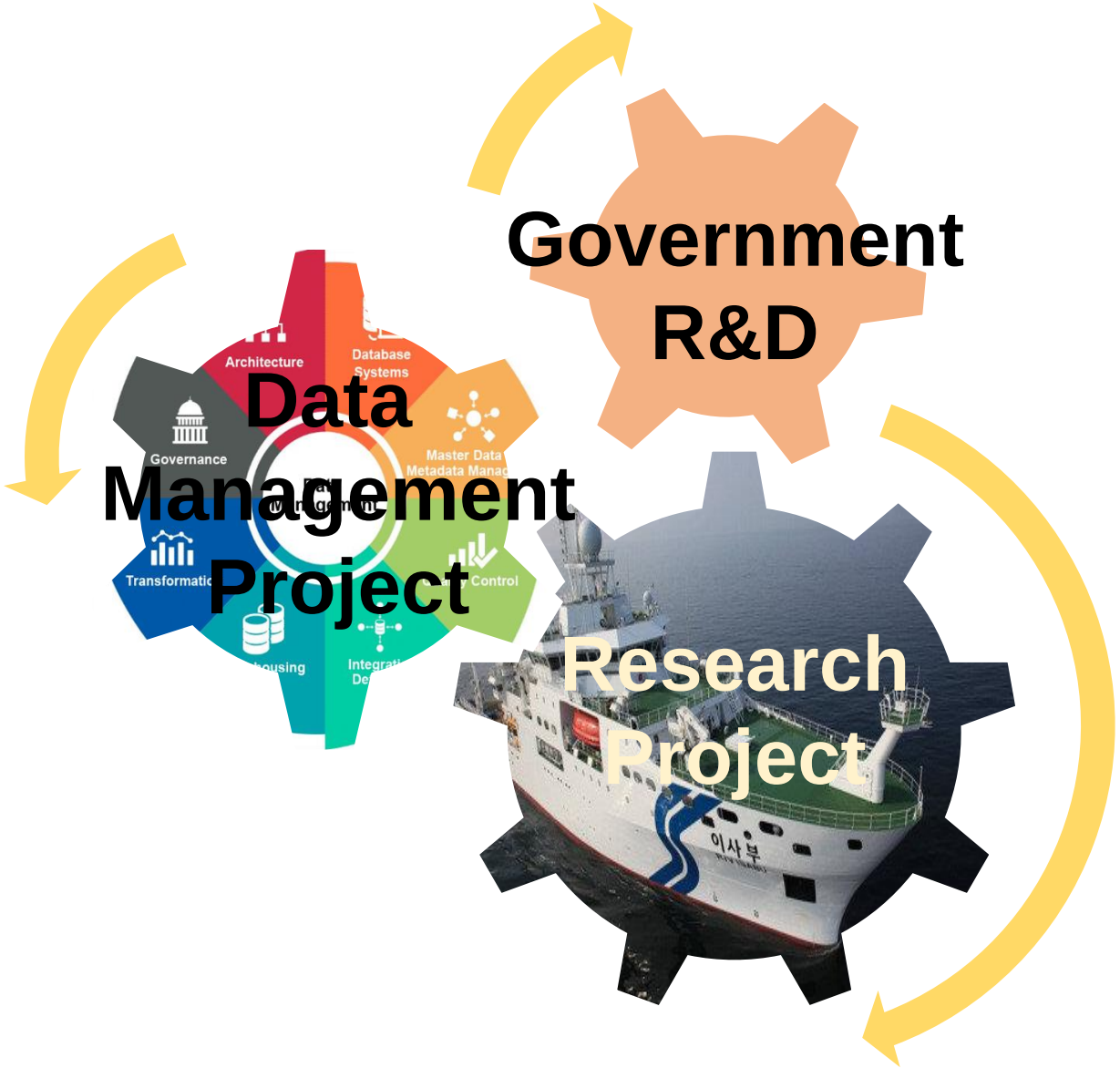
- Frequent change of person in charge (observation & data management) because the NIFS is a public institute (continuity).


## 2) KPDC

- Each data set was obtained through an individual research project, so the data should be used to produce project results (ex) publication)
▶ Conservative for data sharing; Difficult to manage the raw data (there is no obligation to open the raw data…)

- There are various types of data (ocean, land, atmosphere), and the same kind of data was not quality-controlled in the same way.

# 4. Suggestion on Successful Data Management




## ● *Research Project*

- Data acquisition
- Share Metadata
- Research

## ● *Data Management Project*

- A pair with the research project
- The research project's members should participate in this project
- Data QC following the standard methods
- Final output: Raw data with QC flags
- Upload the output to domestic (or global) data storage & submit it to data journals (DOIs)
- Update the metadata with the DOIs

# Thank you for your attention :)

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