United Nations | Department of Economic and Social Affairs
Statistics

Task Team on AIS Data

International Collaboration in Utilizing AIS

Photo by Markus Spiske, unsplash

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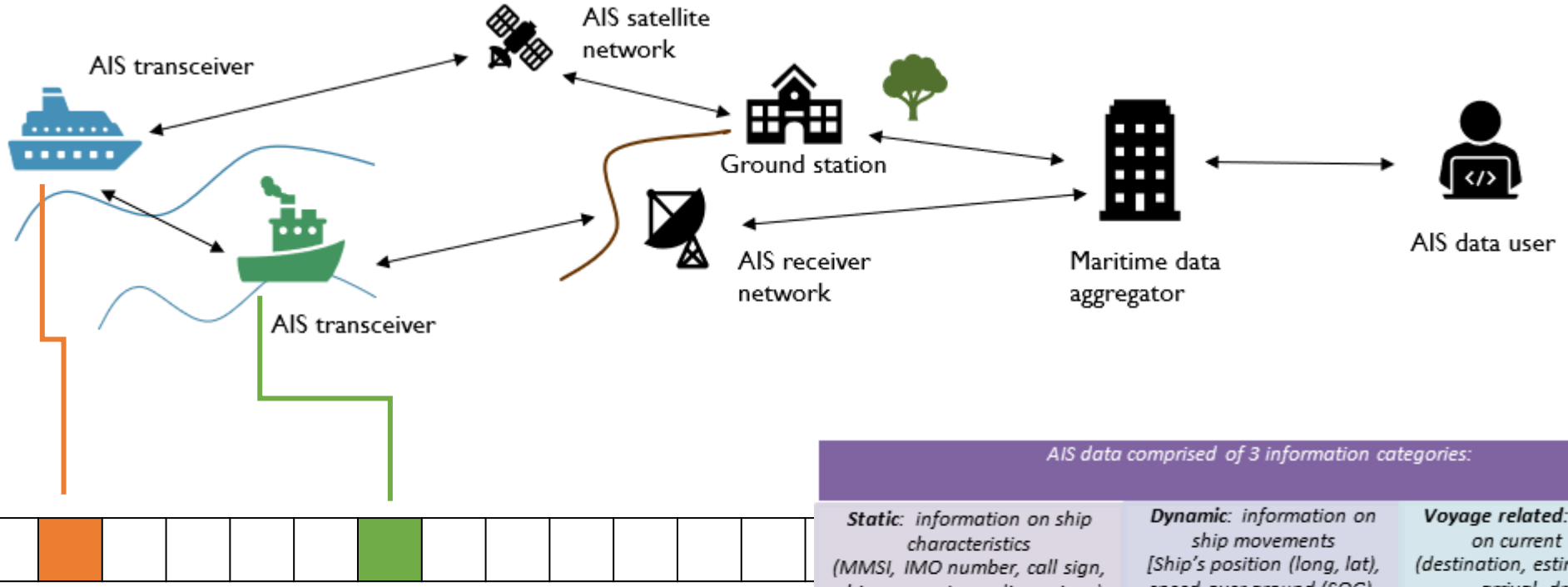
Eurostat TF on Trusted Smart Statistics

WHAT IS AIS DATA – BASIC INFORMATION

- The automatic identification system (AIS) is a tracking system for ships, originally developed for collision avoidance



AIS data comprised of 3 information categories:

***Static**: information on ship characteristics (MMSI, IMO number, call sign, ship name , type, dimensions)*	***Dynamic**: information on ship movements [Ship's position (long, lat), speed over ground (SOG), course over ground (COG), navigation status]*	***Voyage related**: information on current voyage (destination, estimated time of arrival, draught)* Time does not exist in AIS frames. It is added by receivers

Reference: [Lloyd's List Intelligence (2017). Understanding AIS.]

Some Limitations

- AIS message is radio signal, it can be lost
- Message is encoded, it can be corrupted
- Transmitter has specific timeslot, in busy area not all ships can have different timeslots
- AIS transponder can be turned off
- The most important is that AIS is intended to avoid collision
- Land-based transceiver has limited coverage – needs to use satellite receiver in open sea
- Technical errors in AIS dynamic messages (due faulty equipment)
- Delay in updating AIS static messages (or no update)
- Human error when updating AIS static message

Compare to Other Big Data Sources,

General availability of AIS

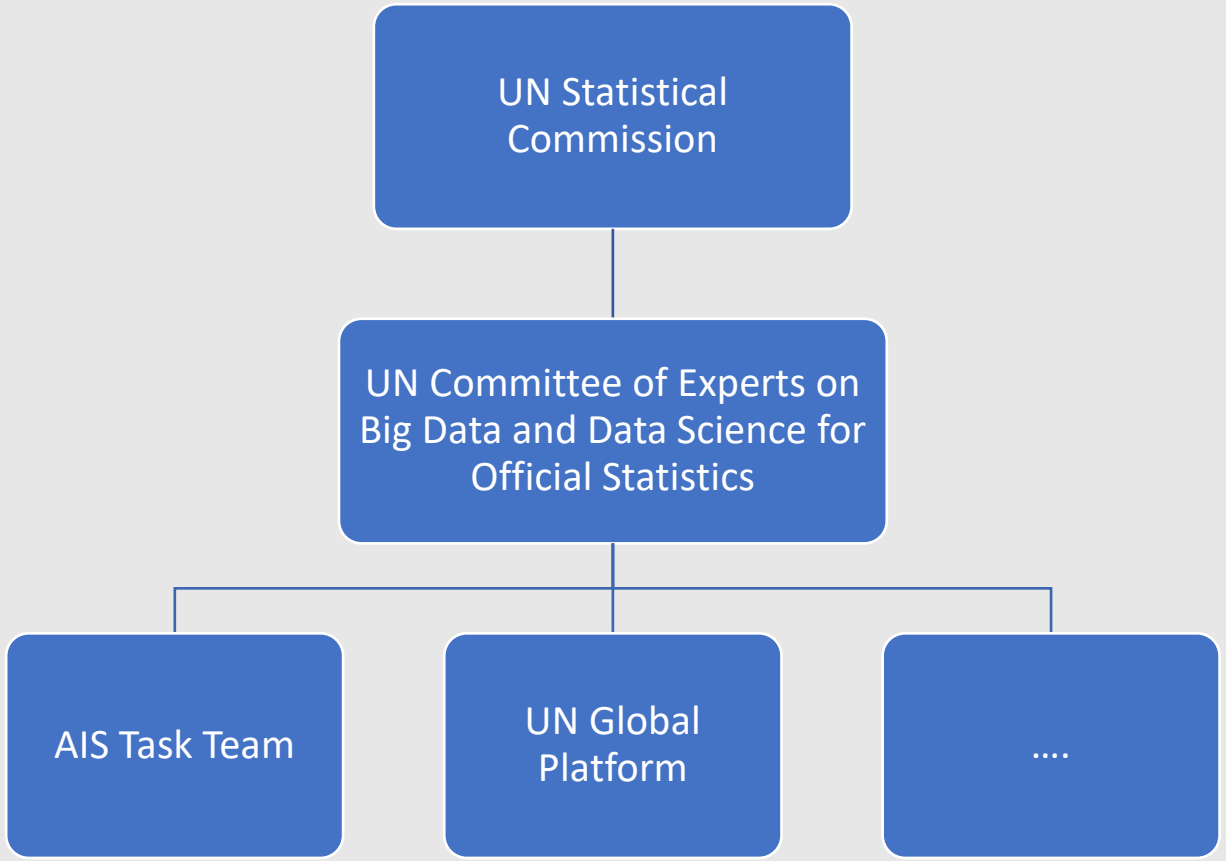
in UN Global Platform (or elsewhere)

and Perception of no Privacy issues

make AIS attractive

To Explore and To Use

AIS Task Team – Hierarchical Overview



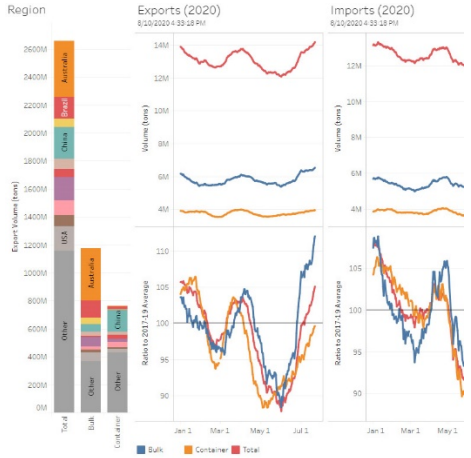
AIS TT Memberships

National Statistical Agencies	CBS Netherlands Hellenic Statistical Authority - Greece Maldives Monetary Authority Statistics Denmark Statistics Indonesia CSO Ireland Statistics Netherlands Statistics New Zealand Statistics Poland UK Department For Transport UK Office for National Statistics ONE Rep. Domican

International Agencies	ADB Eurostat IMF IMO UN Global Pulse UNCTAD UNSD
Other	Autoridad Marítima de Panamá DFID Data Science Hub Environmental Change Institute, University of Oxford MarineTraffic Oceanbolt The Turing Institute University College London

AIS TASK TEAM

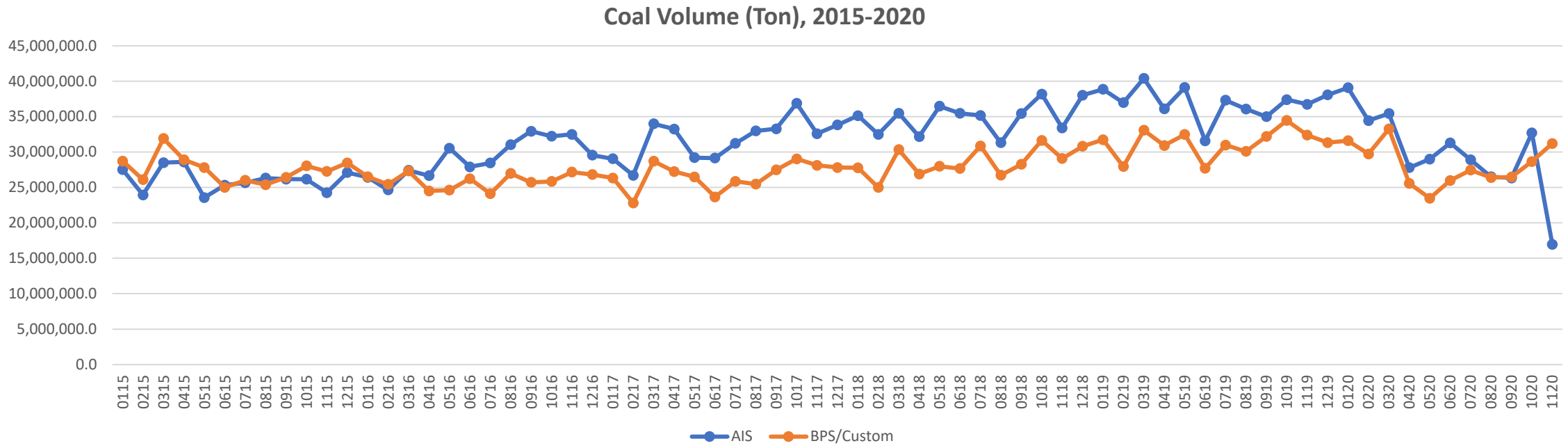
- Part of UN GWG on Big Data for Official Statistics → unstats.un.org/bigdata
- Recent achievements
  - Delivery of the Live AIS Handbook (Initially released in February 2020) https://unstats.un.org/wiki/display/AIS/AIS+Handbook+Outline
  - Release of AIS port calls and trade volume dashboards (August 2020) https://marketplace.officialstatistics.org/ttt-dashboards
  - Release of AIS dry bulk commodities trade dashboard (January 2021)



  - The AIS Data Week (March 2020): https://unstats.un.org/unsd/trade/events/2020/AisDataWeek/default.asp
  - The AIS Hackathon (September 2020): https://unstats.un.org/bigdata/events/2020/ais-hackathon
  - Participation at various events and for a such as ICAO webinar, GWG Big Data Conference, UN World Data Forum "Road to Bern" series in 2020
  - Acquisition of Global Ships Register database in collaboration with IMO (May 2021)
  - Foundation level E-learning on AIS (2021)

AIS TASK TEAM (CONT.)

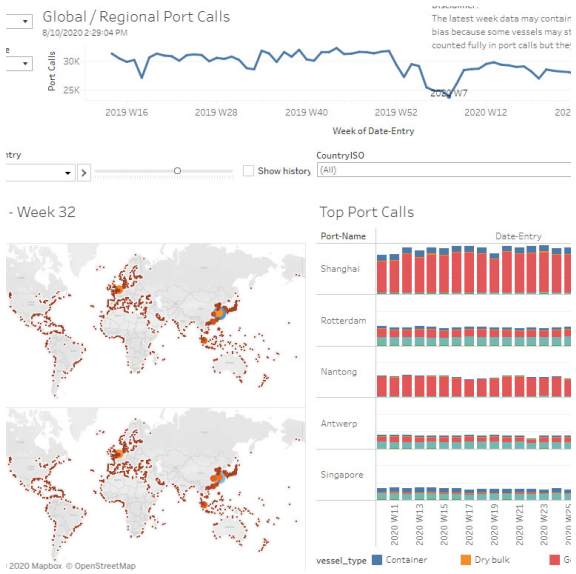
- Ongoing projects (2021)
  - Ongoing update on the AIS Handbook by integrating selected outputs from 2020 AIS Hackathon
  - Benchmarking shipments of bulk dry commodity indicators with official customs data in Indonesia
  - Cruise Tourism by CBS Netherlands



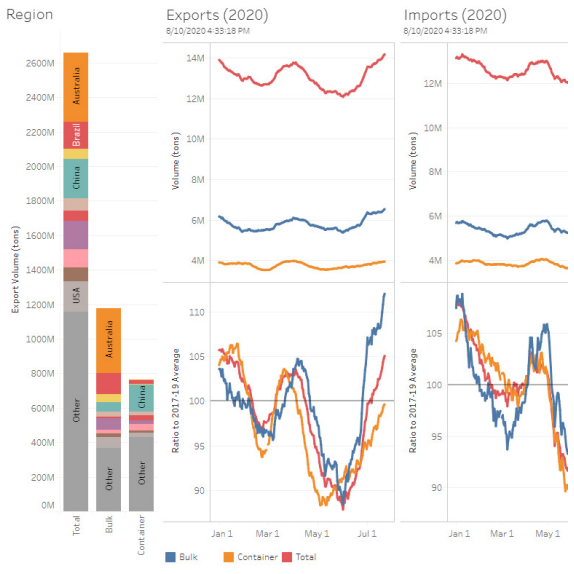
AIS USE CASES

- Use case on ships in distress
- Use case on UK faster economic indicators
- Use case on trade nowcasting
- Use case on measuring port disruption and transport resilience
- Use case on inland waterways
- Use case on fishery zones and illegal fishing
- Use case on vessel emissions and externality costs in a specific port
- Use case on monitoring impact of COVID-19 (i.e., cruise ships)
- Use case on canals
- Use case on port efficiency
- Use case on slavery in sea
- Use case on transaction in high-sea
- Use case on origin destination of vessels
- Use case on linking AIS data and Customs data
- Use case on freight costs
- Use case on impact of fuel prices on ships speed and routes changes
- Use case on dry bulk commodities
- And much more

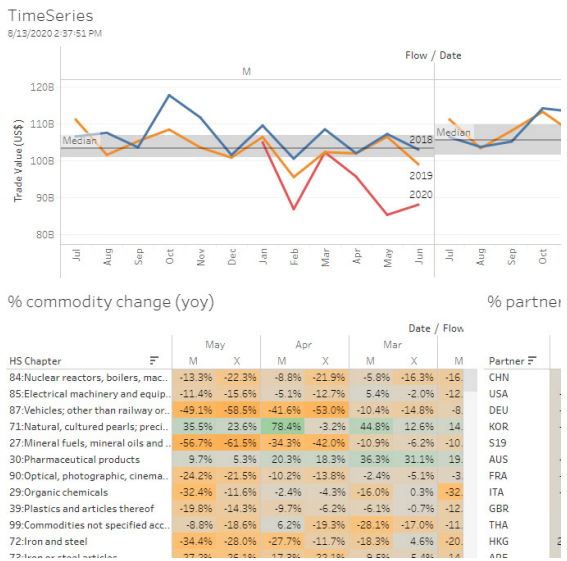
AIS: Weekly Port Calls



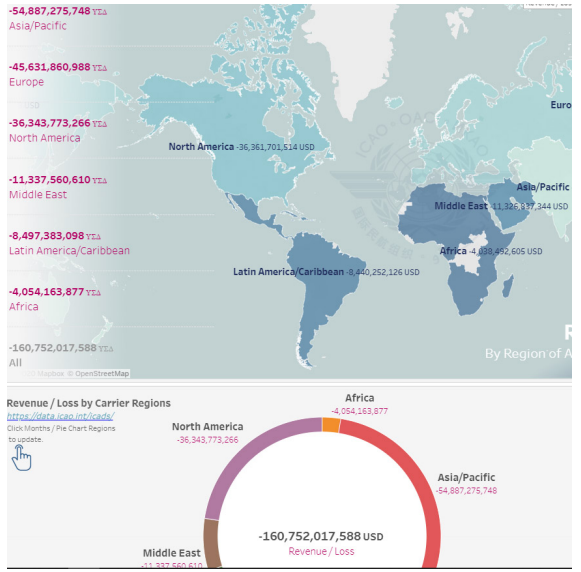
AIS: Daily Trade Volume



UN Comtrade: Monthly Trade Data



ADS-B/ICAO: Economic Impact



Timely Statistics and Experimental Data

https://marketplace.officialstatistics.org/ttt-dashboards

United Nations | DESA
Statistics Division

Thank you.