



SOCAT Update and Road Ahead

Dorothee Bakker, Kim Currie, Are Olsen, Minutes: Steve Jones

13:00 Ongoing and future activities (Dorothee Bakker), including:

Sea surface temperature, salinity, atmospheric pressure

Other surface water parameters

Data upload (Camilla Landa, 5 min)

Automation of metadata upload (video by Kevin O'Brien, 3 min)

Surface water CH₄ and N₂O (Tobias Steinhoff, 3 min)

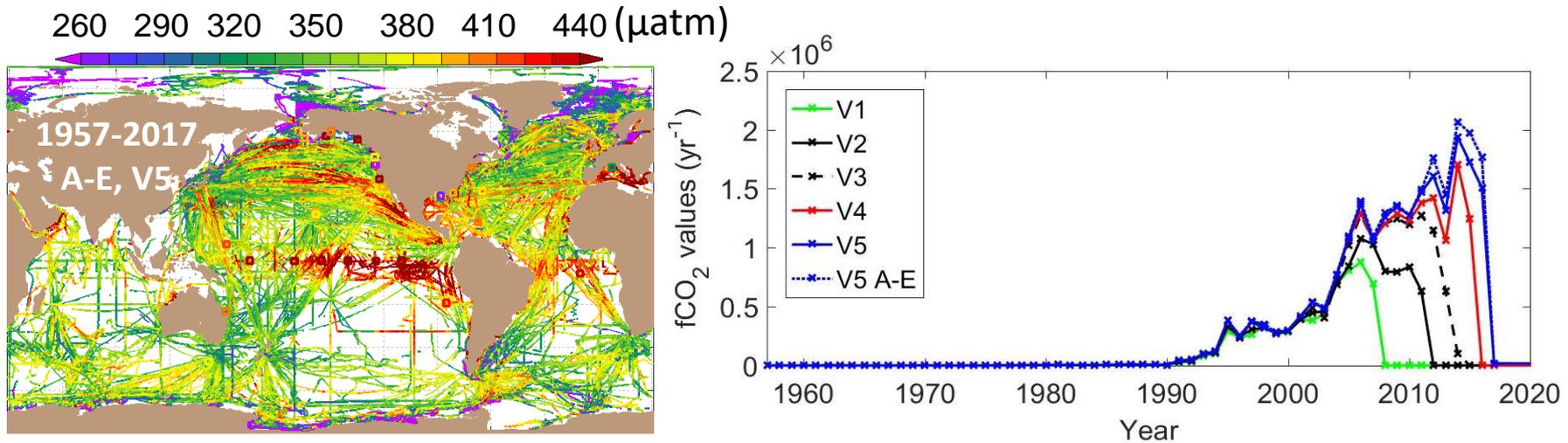
Discussions on:

13:15 SOCAT quality control (Siv Lauvset)

13:30 Atmospheric CO₂ – Value added, requirements (Jonathan Bent)

13:45 Calculated surface water fCO₂ (Rik Wanninkhof)

14:00 End



Global synthesis and gridded products of surface ocean fCO₂

(fugacity of CO₂) in uniform format with quality control;

No gap filling; Annual public releases;

V5: 21.5 million fCO₂ values from 1957-2017, accuracy < 5 μatm (flags A-D);

Plus calibrated sensor data (< 10 μatm , flag E);

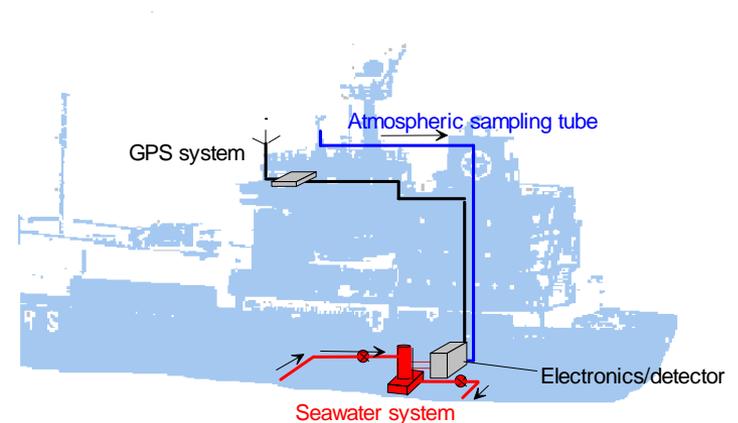
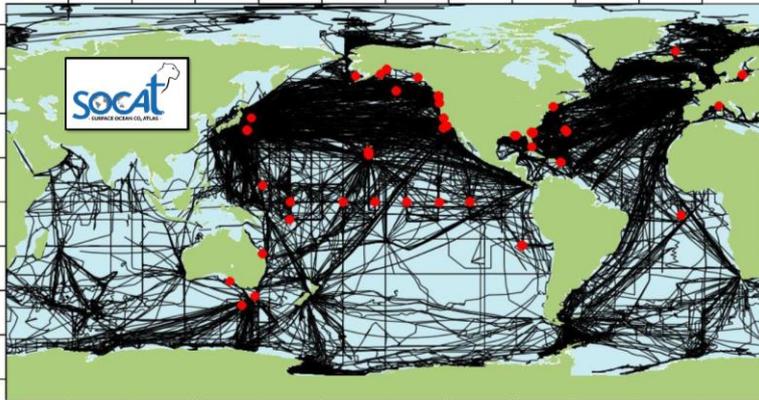
Online viewers, downloadable (text, NetCDF), ODV;

Documented in ESSD articles;

Fair Data Use Statement;

Community activity with >100 contributors worldwide.

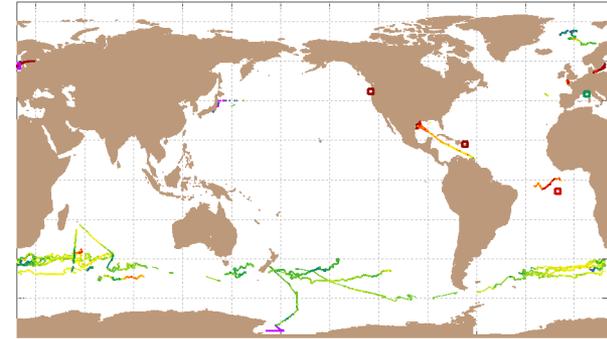
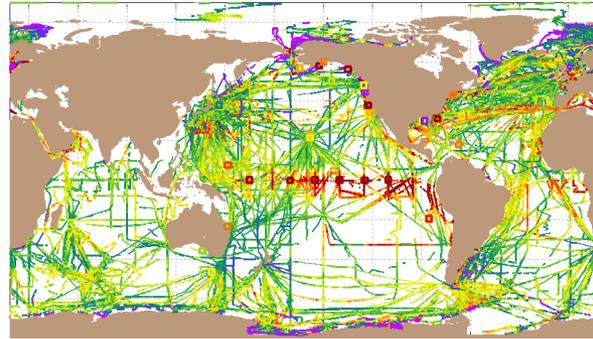
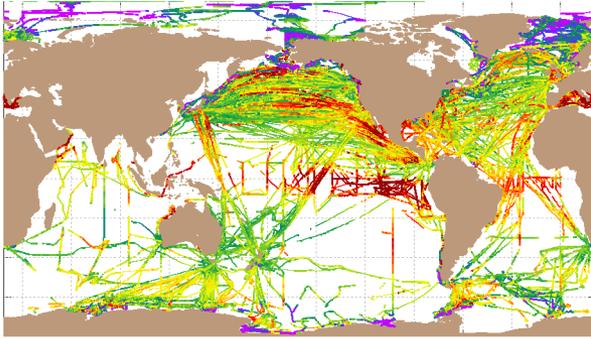
Surface ocean fCO₂ measurements



SOCAT has:

- **Surface ocean fCO₂ measurements** from moving and fixed platforms (i.e. no fCO₂ calculated from pH, TA, DIC, no profiling data);
- **Original fCO₂** from the data originator (i.e. not from a data product);
- Checked sea surface temperature and salinity, but these checks do not meet physical oceanographic standards for temperature and salinity.

Accuracy fCO₂ in data products



Flags A & B

Accuracy < 2 μatm
SOP criteria met
Full documentation

Flags C & D

Accuracy < 5 μatm
SOP criteria not met/
No full documentation

Flag E

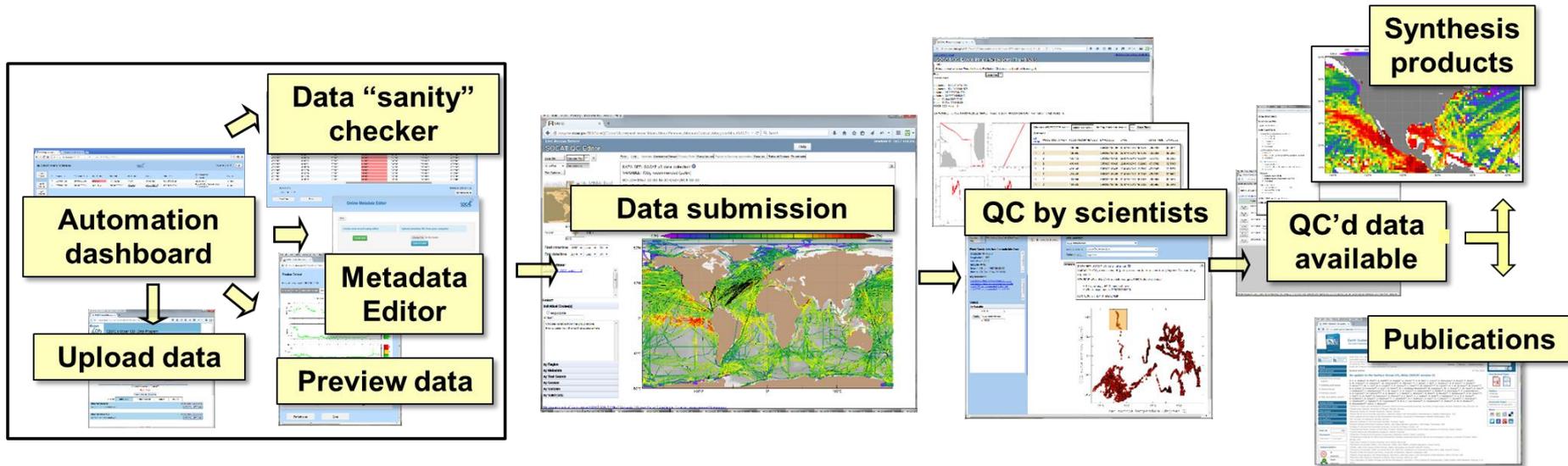
Accuracy < 10 μatm
Calibrated sensor data
Full documentation

Synthesis files & ODV
Gridded data files
Gridded Data Viewer

↓
Flag E data file

Data Set Viewer (Select criteria)
Individual files at Pangaea

Annual releases and automation



- Automation of data upload enables annual SOCAT releases (V4).
- Releases timed for the annual Global Carbon Budget
- Update to SOCAT website (www.socat.info, NEW)

Ongoing / planned:

- Automation of metadata upload (top priority, by summer 2018 for V7)
- Update of 'Cookbook' for quality control (high priority, V6)
- **V6 data submission ends 15 January 2018**
- **V6 quality control ends 31 March 2018**

Corinne Le Quéré in discussion with Are Olsen and Dorothee Bakker

1 author per data set, 2 authors for very large data sets.

Only data PI-s as authors for data that **significantly contribute to the GCB update**, in general flags A-D and some (but not all) coastal data.

Full data sets, not just one cruise / a few days.

Keep authorship discussions honest and polite.

Discussion

| What | Status | Who |
|--|--|---|
| Other surface ocean parameters (nutrients, DIC, TA,..) | Agreed, no quality control , Bergen 2014, GLODAP variables by V7? | Karl, Kevin, global group |
| Surface ocean CH₄, N₂O using LAS infrastructure | Ongoing discussion since 2015 | Tobias Steinhoff, MEMENTO, global group |
| Atmospheric CO₂ | Agreed 2014-15. Scope and QC tbd | Jonathan Bent, Penelope Pickers, Ingrid Luijkx, all |
| Calculated surface ocean fCO₂ | tbd | tbd |

SOCAT needs to prioritize. Actions take volunteers and time to implement. SOCAT annual releases not to be put at risk.