

PACIFICA
(Pacific Carbon)
Data Synthesis Activity

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PICES CC-S and WG members

PACIFICA is ...

An international collaborative activity under the umbrella of
[^]
mostly voluntary



PICES

(North Pacific Marine Science Organization)

- to create a **synthesized data base (PACIFICA)** of **water-column CO₂** related parameters such as DIC, TA, pH(total), oxygen, nutrients, CFCs and salinity,
- for the **North** and the **South Pacific**, and their **marginal seas**,
- that has gone through a **2nd-level quality control**.

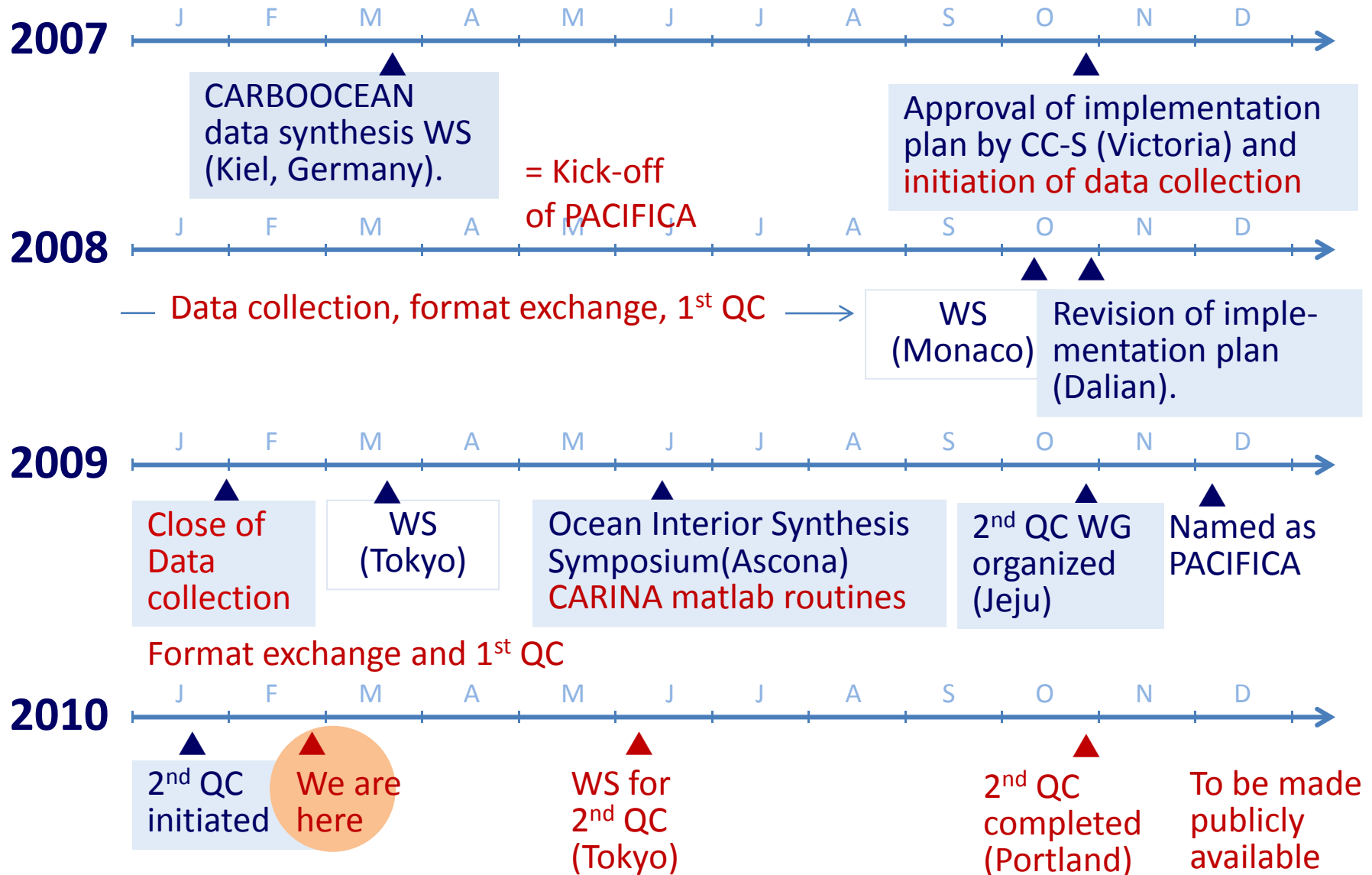
PICES Section on Carbon and Climate (CC-S)

Members

Canada	J. Christian*, S. Johannessen, L. Miller
Japan	M. Ishii, A. Murata, T. Ono, T. Saino*, T. Suzuki, Y. Watanabe
People's Republic of China	L. Chen
Republic of Korea	K. R. Kim, K. Lee, T. Lee
Russian Federation	A. Andreev, P. Y. Tishchenko
United States of America	A. Dickson, S. R. Emerson, R. A. Feely, H. E. Garcia, A. Kozyr, C. Sabine

* co-chairs

Progress of the **PACIFICA** data synthesis



Datasets collected:

- Datasets of **post-WOCE** cruises that include high-quality carbon system data (**DIC, TA, pH**) with hydrographic/chemical data including **DO and nutrients**. Many of these datasets also include data of **transient tracers** such as ^{14}C , ^{14}C and CFCs.
- Datasets that include carbon system measurements that are **not in GLODAP**.

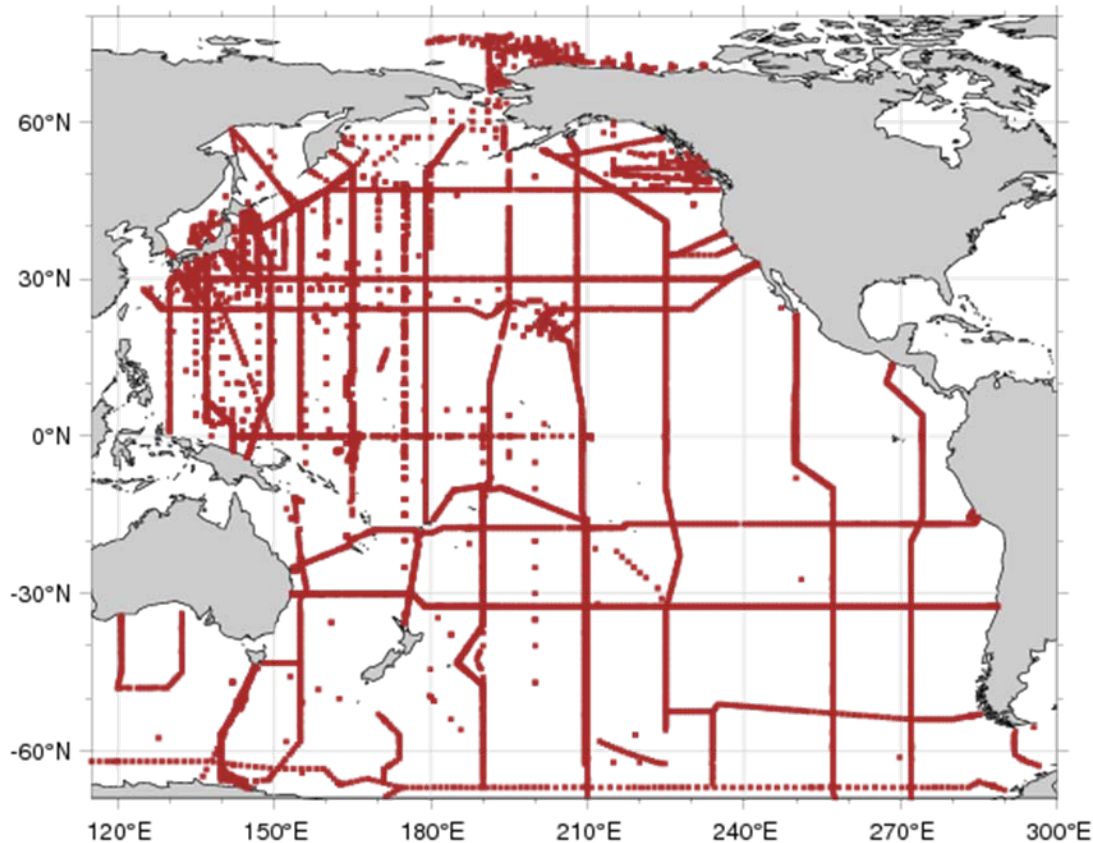
Sources:

- Datasets that are **publicly available** from various data centers, research organizations and programs.
- Unopened datasets that **PIs agreed** to release from the PACIFICA.

Storage :

- T. Suzuki (**MIRC**) and A. Kozyr (**CDIAC**) are responsible for amass, catalog, and format-change (WHP Exchange format) the data.

Data collection – total of 236 cruises



Repeat hydrography:

P15S (2001) CSIRO
P17N (2001) JAMSTEC
P06 (2003) JAMSTEC
P02 (2004) PMEL
P10 (2005) JAMSTEC
P16S (2005) PMEL, SIO
P03 (2005) JAMSTEC
P16N (2006) PMEL, AOML
P01 (2007) JAMSTEC
P14 (2007) JAMSTEC
.....

and many others
including **repeat lines**
and time-series stations.

Secondary quality control (2nd QC)

using Matlab routines developed and used by CARINA group.

[1] Crossover analysis parameter by parameter

by comparing **deep** (> 1500m) measurements at nearby stations during two different cruises on depth, density, theta-spaces with variable horizontal scales : default = 222km radius).

[2] Evaluation of **systematic offset** by **inversion**

for each parameter for each cruise.

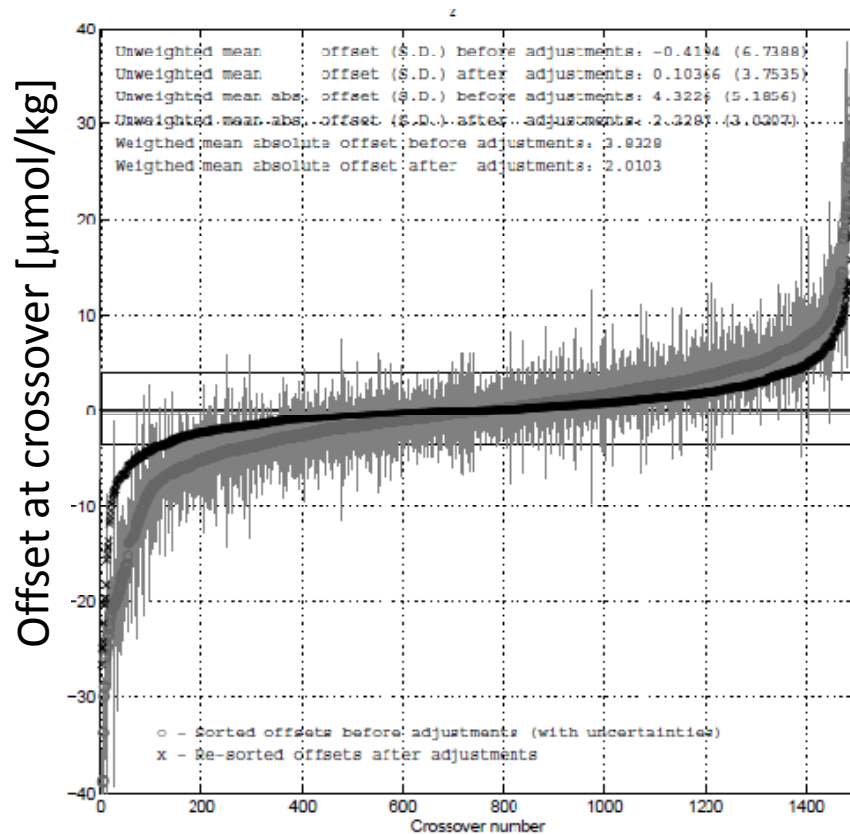
[3] **Assignment** of the offset by WG

by considering **not to erase real temporal change** from oceanographic points of view.

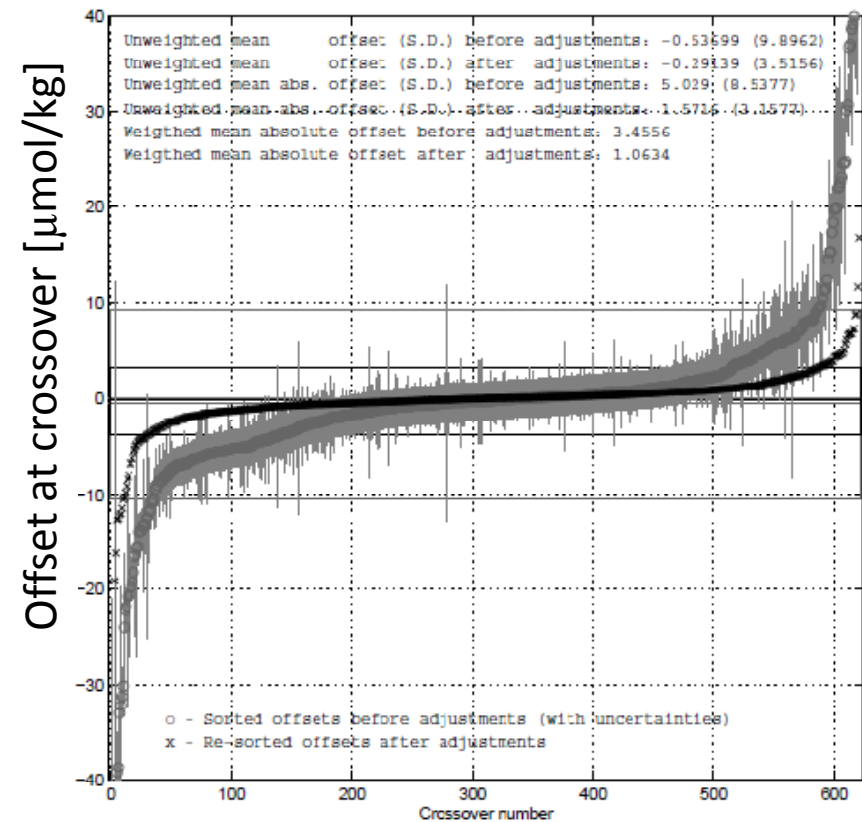
[4] **Adjustment** of offsets

1st results of crossover analysis

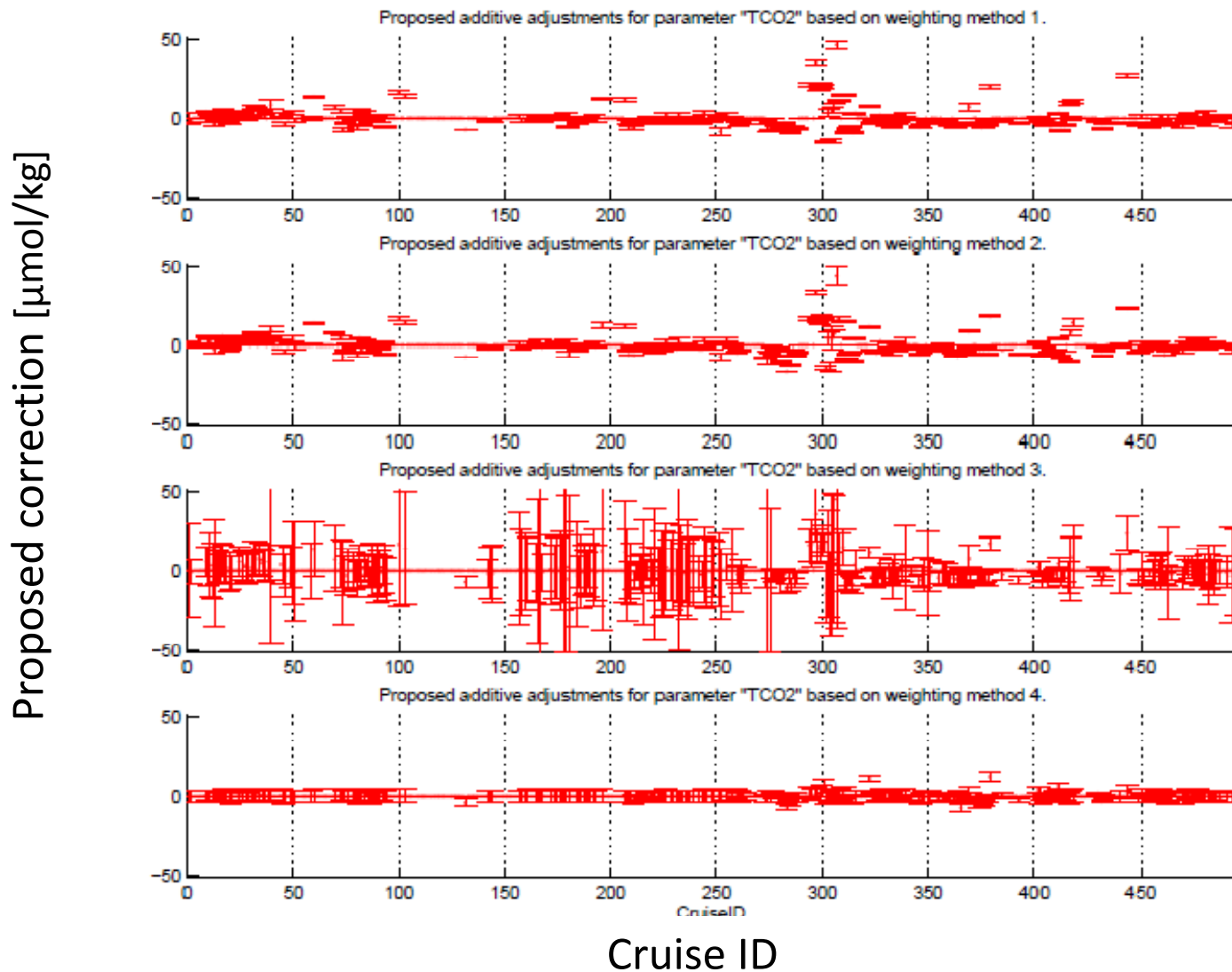
TCO₂ (additive, sigma)



TA (additive, sigma)



Proposed additive adjustments for TCO₂



PACIFICA working groups for 2nd QC

Open Ocean WG:

DIC, TA, pH :	*M. Ishii, M. Wakita, C. Sabine, L. Miller [†]
Oxygen, nutrients :	*T. Ono, M. Aoyama, J. Christian, H. Garcia
CFCs :	*K. Sasaki, J. Bullister
Salinity :	*T. Kawano, M. Aoyama, H. Freeland

Marginal Seas WG:

East/Japan Sea:	*K. Lee
Sea of Okhotsk:	*Y. Watanabe, A. Andreev [†]
Bering Sea:	*A. Murata, J. Mathis [†]
S. and E. China Sea:	*M. Dai [†] , A. Chen [†]

Data Managers : T. Suzuki, A. Kozyr, R. Key

*Group leader, [†] Name put forward by colleagues, confirmation pending

Progress of the **PACIFICA** data synthesis

