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DEVELOPING RESOURCES FOR THE STUDY OF METHYLATED SULFUR COMPOUND CYCLING PROCESSES IN THE OCEAN

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SCOR Annual Meeting, 16-18 October; Qingdao (China) and online

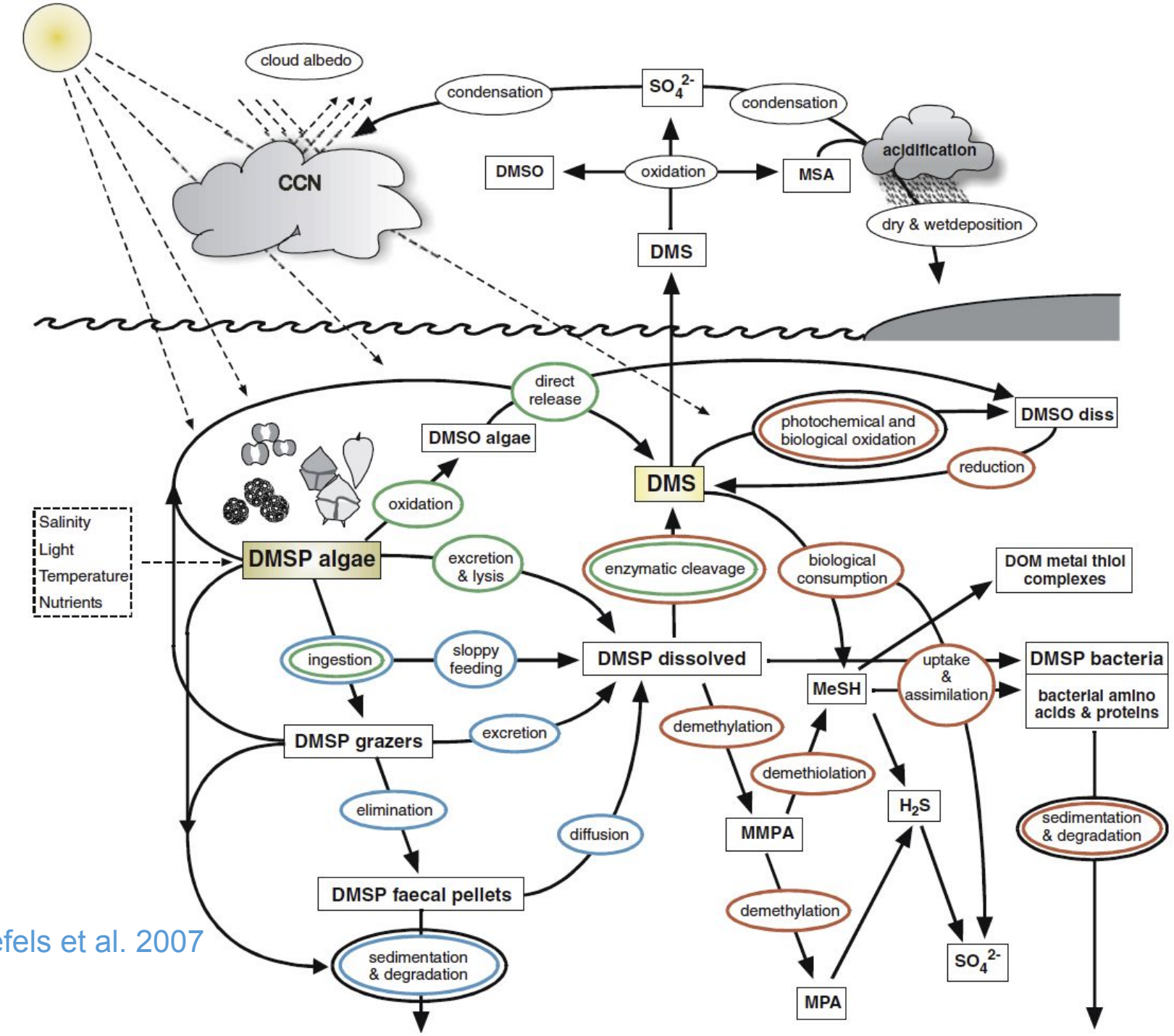
MSC cycling

Abiotic

Phytoplankton

Het. bacteria

Zooplankton



Stefels et al. 2007

MSC cycling
Update needed

Abiotic

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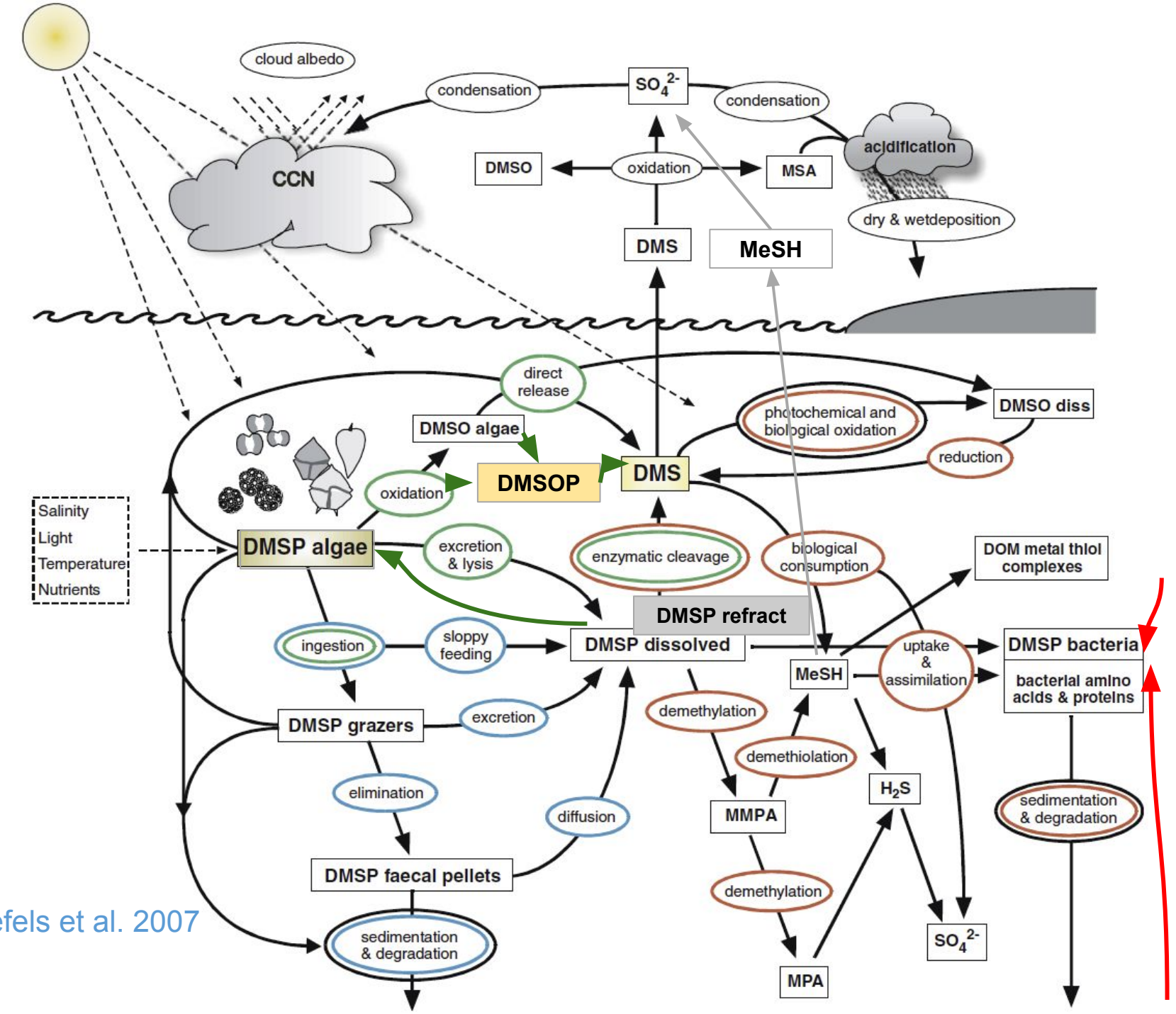
Zooplankton



Stefels et al. 2007

Why DMS-PRO? diagnosis

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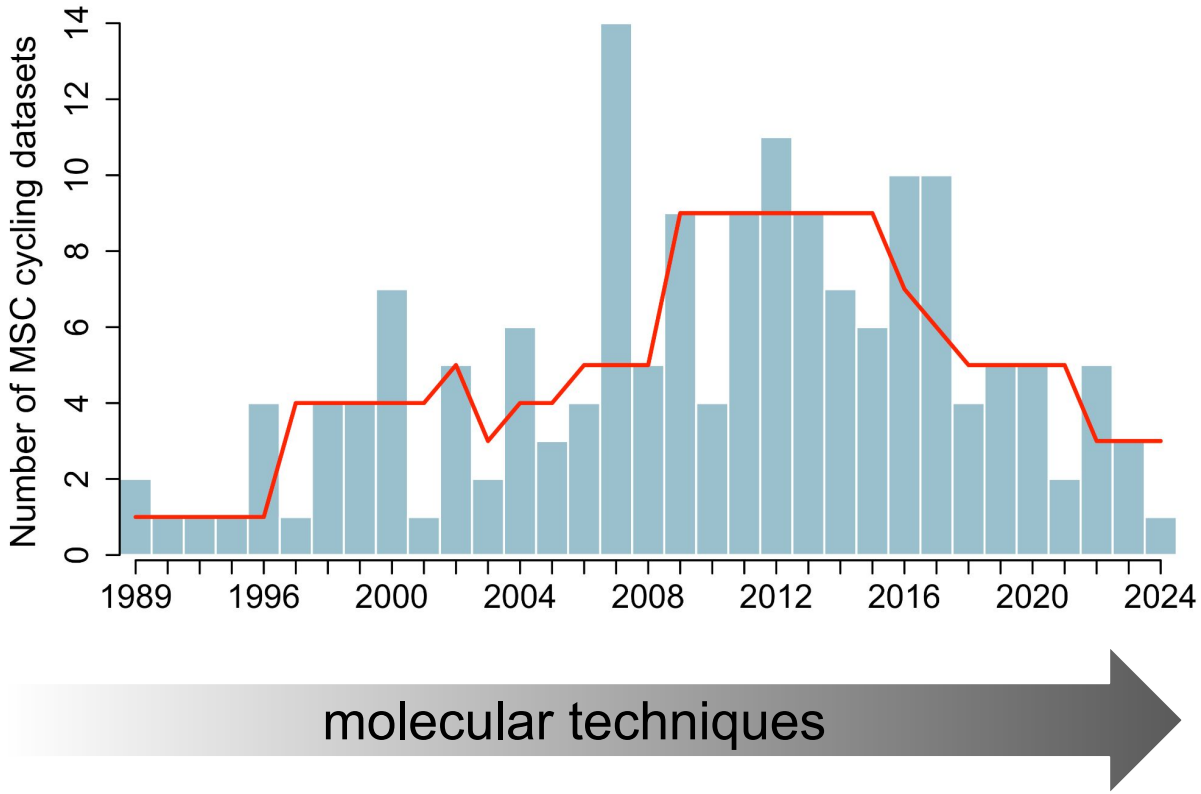
★ Pressing uncertainties in observations and models

Why DMS-PRO? diagnosis

- ★ Pressing uncertainties in observations and models
- ★ Stagnation of process measurements*



*Literature compilation from from DMS-PRO “bibliothon”, April 2024; see later

Why DMS-PRO? diagnosis

- ★ Pressing uncertainties in observations and models
- ★ Stagnation of process measurements
- ★ Scattered, unbalanced community of practice

Why DMS-PRO? diagnosis ⇒ actions/deliverables

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★ Pressing uncertainties in observations and models	➔ Open database and scientific software
★ Stagnation of process measurements	➔ Standard operating procedures (SOPs)
★ Scattered, unbalanced community of practice	➔ Capacity building: engaging, training, uniting, sparking collaboration

Year 2 highlights

★ **Internal** re-organization (new co-chairs; new member)

Year 2 highlights

- ★ **Internal** re-organization
- ★ **Communication**: webpage

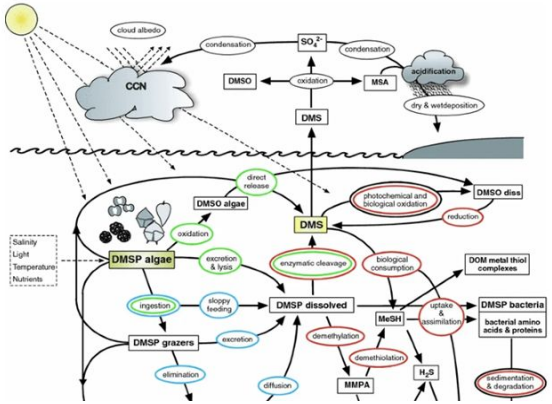
About DMS-PRO

One of the main objectives of the DMS-PRO working group is to establish a comprehensive and open-access database of quality-controlled MSC cycling rates. DMS-PRO will fully evaluate the analytical procedures and uncertainties in the quantification of MSC cycling rates and will synthesize and publish its findings and recommendations on standardized operating practices.

The overarching objective of DMS-PRO is to establish an international community of practice focused on research, capacity development, and oceanographic multidisciplinary collaboration focused on the oceanic biogeochemical sulfur cycle.

Objectives

Organic methylated sulfur compounds (MSCs) play key roles in planktonic food webs as important carbon and sulfur substrates and also as infochemicals that mediate biological interactions. In addition, the oceanic emission of biogenic volatile MSCs to the atmosphere



Year 2 highlights

- ★ **Internal** re-organization
- ★ **Communication**: webpage
- ★ **Communication and community building**: workshop series

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- ★ **SOPs**: Continued work to improved outline, get community feedback (workshops)
- ★ **Database**: functional installation of ERDDAP data server ready to distribute data

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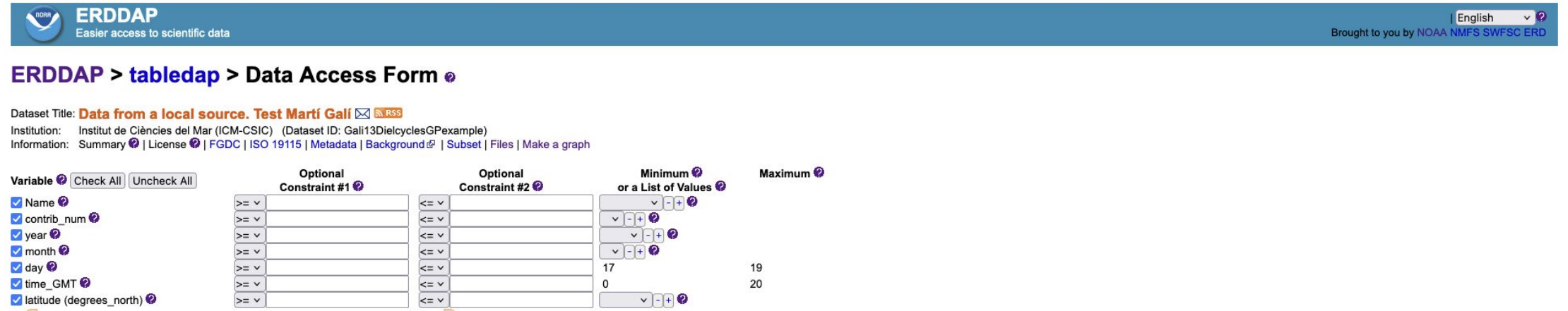

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- ★ **Communication**: webpage
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- ★ **SOPs**: Continued work to improved outline, get community feedback (workshops)
- ★ **Database**: functional installation of ERDDAP data server ready to distribute data
- ★ Ongoing cross-cutting activities:
  - **Literature compilation**: DMS-PRO bibliothon (April 2024)
  - **Renewed MSC cycling schemes** (simplified + complete)

	Terms of Reference	Deliverables
CORE	**(1)** To develop community consensus on the measurement of MSC cycling rates **(2)** To compile a comprehensive database of MSC cycling rates and to disseminate it **(3)** To develop a framework for quality assessment and control of MSC cycling rate datasets	**(1)** Standard Operating Practices (ONGOING) **(2)** Database and web portal (ONGOING) **(3)** Software repository & package (ONGOING)
DERIVED	**(4)** To analyze global patterns of MSC cycling rates **(5)** To provide guidance on the use of the database	**(4)** Database description paper **(5)** Modeling guidelines paper **(6)** Perspective paper (ONGOING)
CROSS-CUTTING	**(6)** To connect with other biogeochemical, molecular and 'omics measurements **(7)** To establish an international, multidisciplinary community of practice	**(7)** Capacity building: hybrid trainings & workshops, online tutorials (ONGOING)

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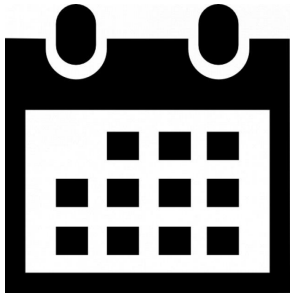
Things to come in 2025…



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- ➔ SOP drafting, community reviews
- ➔ Database: testing design and workflow (from data submission to upload)
- ➔ 7th DMS(P) Symposium (spring 2025?)
  - ◆ Need for in-person meeting!
- ➔ Perspective paper draft…

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