Joint SCOR/IAPWS/IAPSO Committee on the Properties of Seawater (JCS)

Report to SCOR on JCS Activities Sept 2020-Jun 2022

JCS Executive	
Rich Pawlowicz (Chair)	Canada
(temporarily vacant)	Germany
Steffen Seitz (Vice-chair)	Germany
Salinity/Density Taskgroup	
(Rich Pawlowicz) (Chair)	
Frank J. Millero	USA
(Steffen Seitz)	
Hiroshi Uchida	Japan
Youngchao Pang	China
Ryan Woosley	USA
Yohei Kayukawa	Japan
pH Taskgroup	
Andrew Dickson (Chair)	USA
Maria Filomena Camoes	Portugal
Daniela Stoica	France
Simon Clegg	UK
Frank Bastkowski	Germany
Relative Humidity Taskgroup	
Olaf Hellmuth (Chair)	Germany
Jeremy Lovell-Smith	New Zealand
Rainer Feistel	
Stephanie Bell	UK
Chemical Speciation Taskgroup	
(membership TBD)	
Expert subgroup: Thermodynamics	
(Rainer Feistel)	
Expert subgroup: Numerical Modelling and Applications	
Trevor J. McDougall	Australia
Expert subgroup: Software	
Paul Barker	Australia
Industry Representatives	

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Richard Williams (OSIL)	UK
Barbara Laky (Anton Paar)	Austria

(R. Feistel has stepped down as Vice-chair)

Meetings

Although no in-person meeting occurred, a "virtual" meeting of JCS occurred Nov 16 (3 2-hour meeting slots, with 10, 12, and 8 participants for salinity/density, pH, and RH taskgroups respectively, scheduled to maximize global attendance). A second virtual meeting (2 2-hour meeting slots, with 5 and 8 participants for salinity/density and pH respectively, with the RH meeting being postponed due to a medical emergency by the chair) was held June 14, 2022.

Web site

JCS maintains a web site at www.teos-10.org. This site gets 750-1300 visitors per month (9,007 in the

Web site Item	Unique downloads June 2011-June 2013	Unique downloads June 2013-June 2014	Unique downloads June 2014-June 2015	Unique downloads June 2015-June 2016	Unique downloads June 2016-June 2017	Unique downloads June 2017-June 2018	Unique downloads June 2018-Apr 2019	Unique downloads May 2019-May 2020	Unique downloads May 2020-June 2021	Unique downloads June 2021-June 2022
Manual	920	360	535	552	418	427	349	472	479	
Getting Started	879	362	558	547	427	475	349	444	460	
Slides	704	284	374	318	219	248	204	272	272	
Primer	584	197	289	297	222	217	187	253	260	
Thermodynamics Lecture Notes								22	34	
Thermodynamics Overview								24	27	
GSW MATLAB_v3_0	1920	1102	1485	1814	1235	1552	1233	1556	1504	
GSW FORTRAN_v3_	366	222	171	162	127	116	82	98	83	
GSW_C_v3_0	202	84	133	151	85	96	59	81	58	
GSW_PHP	-	55	61	43	29	60	28	52	22	
SIA_VB	72	100	46	45	45	48	43	47	47	
SIA_FORTRAN	59	118	58	44	36	42	37	42	31	

past year, with 73311 "unique views[1]" since Oct 2010). Annual downloads are stable.

Discussions have begun on a JCS website separate from the TEOS-10 website.

Other Progress

1) Work related to making progress in the pH taskgroup is being carried out under the auspices of SCOR WG 145, which ends soon. Approval received from IAPSO and SCOR for the development of a Chemical Speciation taskgroup (IAPWS approval is waiting on their annual meeting in Nov 2022).
2) SC has submitted several manuscripts on modelling speciation in seawater and the marine "total" pH scale.
3) FC and others have been busy with their UnipHied project, implementing the concept of absolute pH of seawater, and publications are coming out soon.
4) SS and others are involved in a MINKE project related to CTD calibrations.
5) HU now has salinity anomaly measurements from 44 cruises and is working on publishing them.
6) HU is working on a Multi-parameter Standard Seawater (MSSW) stored in 500 mL aluminum bottles; a batch is being prepared for long-term stability intercomparisons with SSW.
7) RP is (still) working on understanding the diffusion of seawater and possible fractionations that result from this (MSc thesis completed fall 2019, paper in progress)
8) AD investigating purification requirements for dye in spectrophotometric pH measurements.

Papers published

1) T. J. McDougall, P. M. Barker, R. M. Holmes, R. Pawlowicz, S. M. Griffies, and P. J. Durack (2021), The interpretation of temperature and salinity variables in numerical ocean model output, and the calculation of heat fluxes and heat content, Geosci. Model Dev., 14, 6445–6466, 2021, https://doi.org/10.5194/gmd-14-6445-2021
2) R. Feistel, O. Hellmuth, and J. W. Lovell-Smith Defining relative humidity in terms of water activity. Part 3: Relations to dew-point and frost-point temperatures, Accepted Manuscript online 19 May 2022 https://doi.org/10.1088/1681-7575/ac7185

R. Pawlowicz

JCS chair, June 30 2022

[1] The method of computing "unique views" changed in 2019.