

PACE-PAX research report 2024/09/18

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2024/09/28

Reviewed by Samuel LeBlanc

Ocean only operations with R/V Shearwater, R/V Blissfully and gliders in generally cloud free conditions during PACE overpass.

ER-2

No flight

Twin Otter

No flight

R/V Shearwater

Mission Scientist: Michael Ondrusek

Sailed out: 15:42 UTC

Back in port: 00:00 UTC

[See end for full R/V Shearwater report](#)

R/V Blissfully

Mission Scientist: Bridget Seegers

Sailed out: 16:13 UTC

Back in port: UTC

[See end for full R/V Blissfully report](#)

PACE

Overpass at 20:49, offshore to west

EarthCARE

Far from sample region

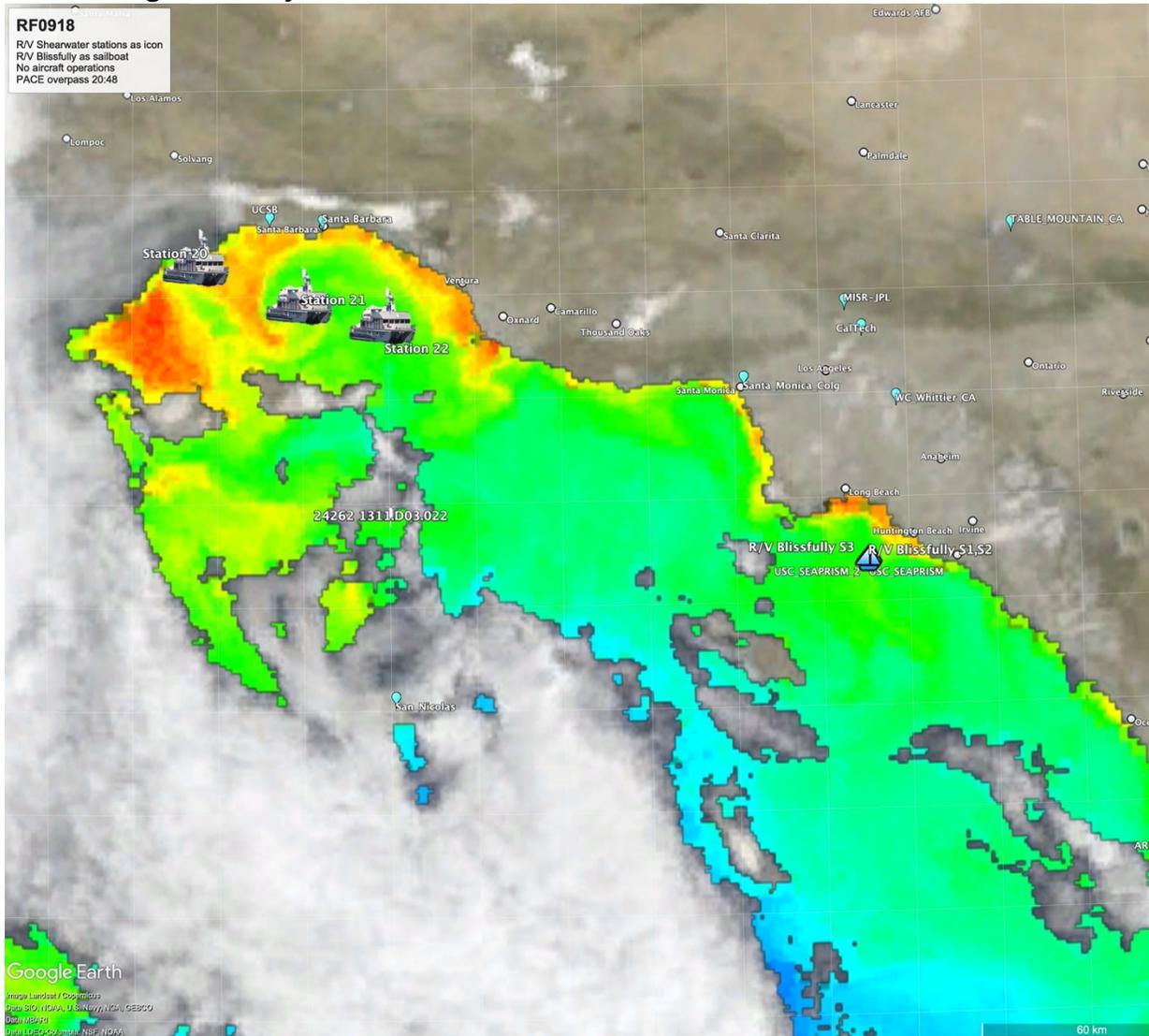
Gliders

Operational

HyperNAV

Operational

Overall image summary



Note: not shown is the PACE track, which was to the west over the ocean

Validation Traceability Matrix itemized objectives

VTM elements in **black** satisfied, **blue** partially satisfied, **red** to be confirmed

Time UTC	Platform	VTM(hrs)	
15:42	RS		Shearwater departs, UCSB AERONET AOD(500)=0.1
16:13	RB		Blissfully departs
19:29	RS	1b(2.0), 1c(2.0*0.5), 6i(2.0*0.5)	Station 21 until 21:12. PACE-OH Overpass. Minimal Clouds. Possible lack of AERONET/Cimel measurements.
20:49	PACE		PACE overpass offshore
20:56	RB	1b(1.0), 1c(1.0)	Station #18 until 21:55. PACE-OH Overpass. No clouds.
00:00	RS		Return
	RB		Return

PACE-O: within swath of PACE's OCI instrument

PACE-OH: within swath of PACE's OCI and HARP2 instruments
 PACE-OHS: within swath of PACE's OCI, SPEXone and HARP2 instruments
 RB: R/V Blissfully
 RS: R/V Shearwater

Assessment:

- 0.3% of objectives observed, as expected for ship only PACE overpass scenario.
- Top remaining objectives (score above 6.0): PACE aerosol in narrow swath (3a,b)

PACE-PAX progress tracking														
Validation objectives	ID	Measurement objectives	Importance, w	Observation time, h (hours)	Total observed (hours)	Fractional success 9/16	Fractional success 9/17	Fractional success 9/18	Fractional success 9/19	Fractional success 9/20	Fractional success 9/21	Fractional success 9/22	Total success	Remaining score
1. Validate new retrieval properties	a	Land surface parameters	8	2.0	4.0	0.0%	39.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.938	0.5
	b	Ocean radiometric parameters	10	8.0	11.0	0.0%	2.6%	0.5%	0.0%	0.0%	0.0%	0.0%	0.990	0.1
	c	Aerosol parameters over the ocean	12	8.0	7.0	0.0%	4.1%	1.1%	0.0%	0.0%	0.0%	0.0%	0.963	0.4
	d	Aerosol parameters over land	12	8.0	3.0	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.998	0.0
	e	Cloud parameters	12	8.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.695	3.7
	f	Ocean surface parameters	1	8.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0
3. Validate in a narrow swath	a	Aerosol parameters over the ocean (PACE)	10	8.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.354	5.5
	b	Aerosol parameters over land (PACE)	10	8.0	2.0	0.0%	17.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.403	6.0
	c	Cloud parameters (PACE)	5	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.713	1.4
	d	Aerosol parameters (EarthCARE)	8	4.0	3.0	0.0%	52.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.992	0.1
	e	Cloud parameters (EarthCARE)	8	4.0	1.0	0.0%	19.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.313	5.5
4. Validate radiometric and polarimetric properties	a	Validate large reflectances	6	2.0	4.0	0.0%	49.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.923	0.5
	b	Validate large reflectances with high polarization	6	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.393	3.6
	c	Validate large reflectances with low polarization	6	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.777	1.3
	d	Overfly vicarious calibration sites	6	4.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.268	4.4
6. Focus on specific processes or phenomena	a	High aerosol loads over land	4	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.000	0.0
	b	High aerosol loads over ocean	4	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.393	2.4
	c	Multiple aerosol layers	1	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.000	0.0
	d	Aerosol under thin cirrus	2	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.157	2.0
	e	Aerosol above liquid phase cloud	4	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.826	0.7
	f	Broken clouds with complex structure	4	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.528	1.9
	g	Dust aerosols over ocean	4	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.430	2.3
	h	Aerosol and ocean parameters over turbid waters	2	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.790	0.4
	i	Aerosol and ocean parameters over biologically productive waters	4	2.0	5.0	0.0%	86.5%	5.3%	0.0%	0.0%	0.0%	0.0%	0.918	0.3
	k	Smoke aerosols over ocean	1	2.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.713	0.3
	total:			150	98	40.0	0.0%	11.9%	0.3%	0.0%	0.0%	0.0%	0.698	
				ER-2 flight hours	15.8	0	0	0	0	0	0	0	0	15.8
				TO flight hours	11.2	0	0	0	0	0	0	0	0	11.2
				Shearwater days	4	0	0	0	0	0	0	0	0	4
				PACE-PAX overall objectives satisfied:	0.698									

Note: images and data presented in this report are preliminary, and not for publication, presentation, or scientific use. The PACE-PAX data archive is:

<https://www-air.larc.nasa.gov/missions/pacepax/index.html>

R/V Shearwater photos

Station #21 $34^{\circ} 17.827'$, $-119^{\circ} 45.022'$, arrival 19:29 UTC → departure 21:12 UTC

Arrival photo:



Departure photo: ($34^{\circ} 18.510'$, $-119 45.695'$)



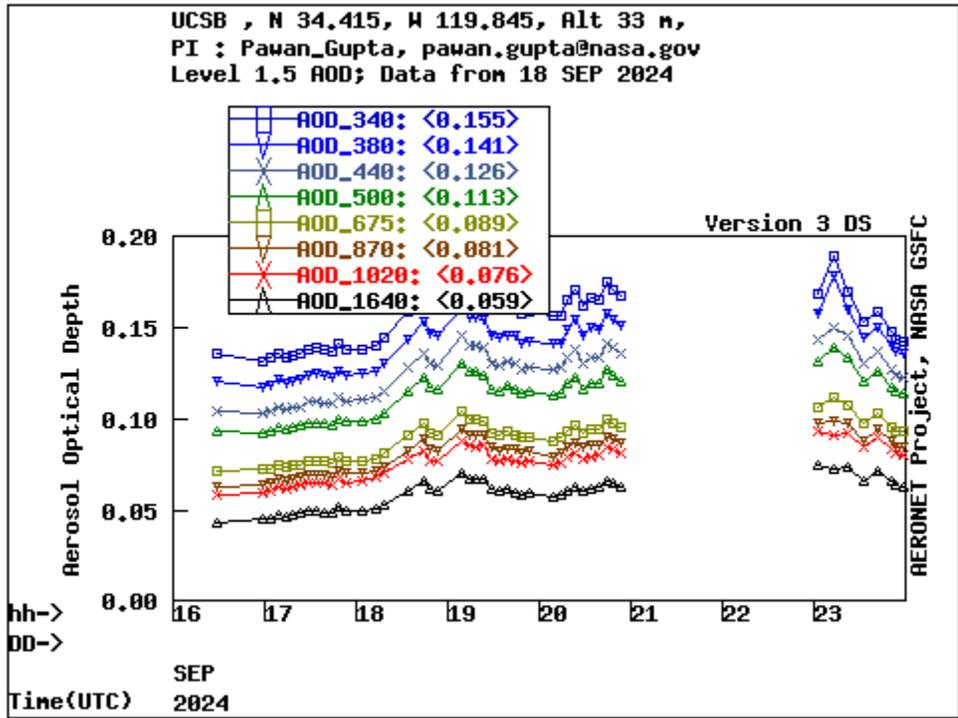
R/V Blissfully photos

Station #RB_18: 33° 34.8096', - 118° 3.684', arrival 20:56 UTC, departure 21:55. PACE overpass at 20:49:09

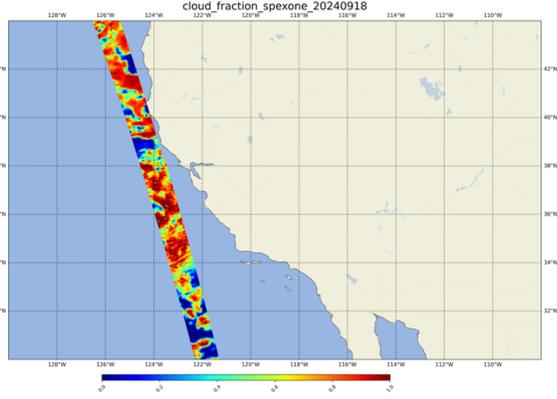
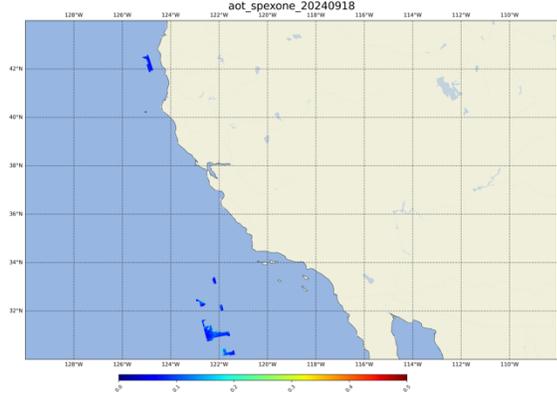
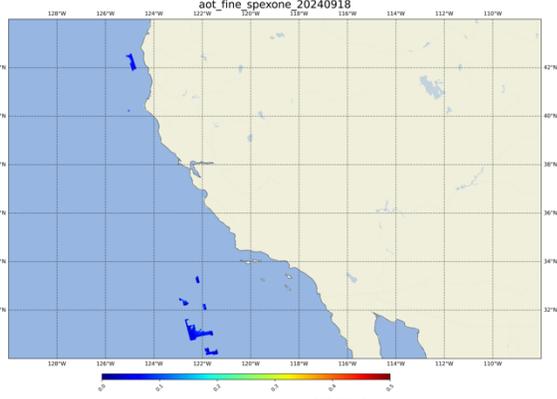
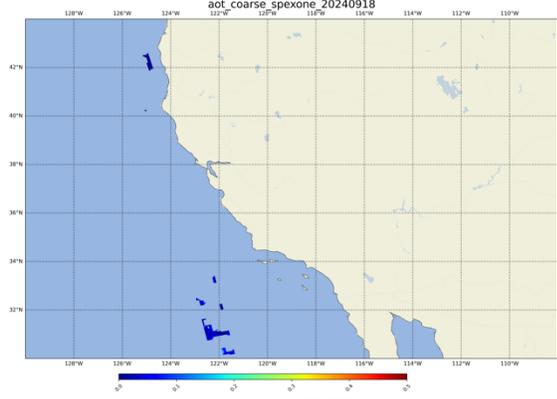
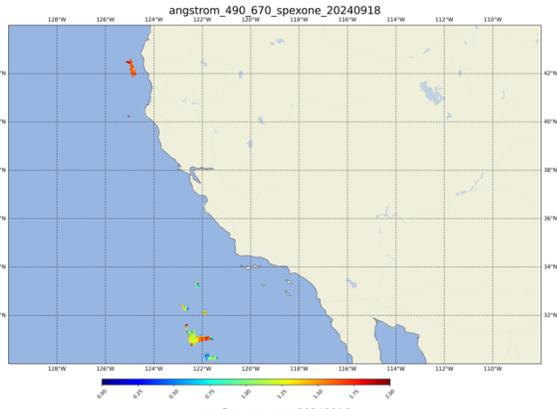
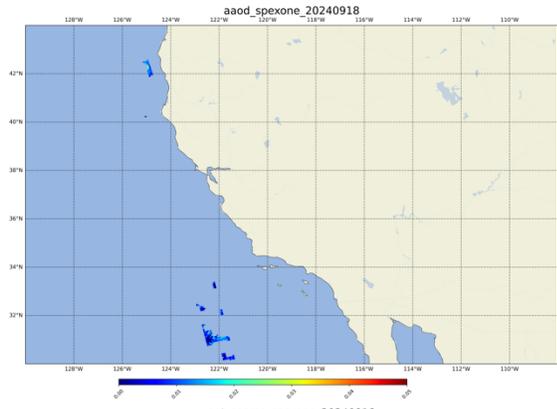


AERONET quicklooks

UCSB



PACE Satellite products



R/V Shearwater report

PACE-PAX R/V Shearwater day report

Date: 09/18/2024

Creator: Michael Ondrusek

Cruise ID: RF0918-RS

Sailed out: 15:42 UTC

Back in port: 00:00 UTC (09/19/2024)

Today, the ship occupied three stations:

Station #20 34° 20.935', 120° 03.225', arrival 17:10 UTC → departure 18:35 UTC

Arrival photo:



Departure photo (departure location - 34° 21.896', - 120° 03.430')



Station #21 34° 17.827', -119° 45.022', arrival 19:29 UTC → departure 21:12 UTC

Arrival photo:



Departure photo: (34° 18.510', -119 45.695')



Station #22 34° 17.216', -119° 31.875', arrival 21:51 UTC → departure 23:08 UTC

Arrival photo:



Departure photo: (34° 17.199', -119° 31.035')



Tomorrow, RV Shearwater will

Ship plans through the next 3 days...

System Status...

All good

Group Status...

All great

RV Blissfully report

PACE-PAX R/V Blissfully day report

Date: 09/18/2024

Creator: Bridget Seegers

Cruise ID: RF0918-RB

Sailed out: 16:13 UTC

Back in port: UTC

Today, the ship accomplished....

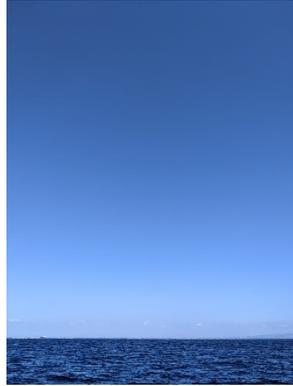
Collection of vertical radiometry profiles and discrete sample collection (HPLC + ap) on three stations in proximity of SeaPRISM site. The stations had three sets of 5 HyperPro profiles to 20m and a single deep cast to 60m. Station discrete water samples included triplicate HPLC + ap and duplicate community composition Lugol's preserved and paraformaldehyde samples for flow cytometry.

Stations:

Station #RB_17 33° 33.693' -118° 6.925' arrival at 19:27 UTC, departure 20:16



Station #RB_18: 33° 34.8096', - 118° 3.684', arrival 20:56 UTC, departure 21:55. PACE overpass at 20:49:09



Tomorrow, RV Blissfully will

Ship plans through the next 3 days... RV Blissfully will continue to sample to support overpasses until Sept 19. Then, will head back to home harbor in San Diego.

System Status...

All good

Group Status...

All great