

SABIA-Mar Mission Update

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SABIA-Mar mission

Main Objective

To obtain information over oceans in all the world, particularly on Argentinian and South America coastal waters, focused on:

- Primary productivity
- Ecosystems and maritime habitats
- Fishery management
- Water quality



Global (800 m)



Scenarios

Regional
South America Coast
(200/400 m)



PRODUCTS

Water Leaving Radiance
Chl-a concentration
Turbidity
Kd(490)
PAR



THE SATELLITE

Sun-synchronous Polar orbit
702 Km height
99.8 min period
10:20am local time DN
2 days revisit
9 days repeat cycle
700 kg mass - 2x2x2 m
5 years lifetime



Ground Stations

Córdoba
Tolhuin



Educational

Public Outreach program
Webinars
Teaching aids



SCIENCE

Cameras
VISible-Near InfraRed
NIR-ShortWave InfraRed
High Sensitivity Camera
Data Collection System
Liulin Dosimeter
GNSS receiver

Spectral bands
 15 VIS-NIR-SWIR (412 to 1610 nm)

Research
 Science Team
 Added value products
 Data distribution for free



Camera	Swath	Band	λ_0	FWHM	GSD		L_{typ}	L_{max}	S/N*
			[nm]	[nm]	Regional [m]	Global [m]	[W m ⁻² μm ⁻¹ sr ⁻¹]**		
VIS/NIR	1496km	B0	412	10	200	800	79	602	1000
		B1	443	10	200	800	68	664	1000
		B2	490	10	200	800	52	686	1000
		B3	510	10	200	800	45	663	1000
		B4	555	10	200	800	34	643	1000
		B5	620	10	200	800	21	570	1000
		B6	665	10	200	800	16	536	1000
		B7	680	7.5	200	800	15	517	1500
		B8	710	10	200	800	12	489	1000
		B9 [†]	750	10	200	800	10	447	600
		B11 [†]	865	20	200	800	5.9	333	400
NIR/SWIR	1495km	B9 [†]	750	10	400	-	10	447	600
		B10	765	10	400	-	7.8	430	600
		B11 [†]	865	20	400	-	5.9	333	400
		B12	1044	20	400	-	3.7	236	400
		B13	1240	20	400	-	0.88	158	250
B14	1610	60	400	-	0.29	82	250		

[†] Bands 9 and 11 are repeated in both cameras.

* @ L_{Typ} at GSD:1000 m.

L1 Products:

- ▶ L1A: Raw and geolocation data.
- ▶ L1B: TOA radiance/reflectance.
- ▶ Calibrations methods planned: Lunar, solar, vicarious, cold sky, side-slither.
- ▶ Files: Granules of 5 minutes.
- ▶ Native spatial resolution: 800m Global, 200/400m Regional.

L2 Products:

- ▶ Normalized Water Leaving Radiance and Remote Sensing Reflectance, Chlorophyll-a concentration, FHL, Turbidity, Kd(490), PAR.
- ▶ Chl-a available in NRT in regional scenario.
- ▶ Files: Granules of 5 minutes.
- ▶ Native spatial resolution.

L3 Products:

- ▶ All L2 variable will be aggregated.
- ▶ Binned and mapped
- ▶ Temporal: Daily, 8-days, monthly and seasonal
- ▶ Spatial Regional: 460m
- ▶ Spatial Global: 2.32 and 4.6km.
- ▶ Each product in separated file.

- ▶ netCDF4 format with CF and ISO metadata.
- ▶ Free data policy.

SABIA-Mar will generate the following geo-physical variables, based on models and algorithms existing in the scientific community.

L2 product	Algorithm	Bands	
$[L_W]_N$ & R_{sr}	NASA Global	L2 product 412, 443, 490, 510, 555, 620, 665, 680, 710	Atm Corr 750, 865
	Regional	+ 865	750, 765, 1044, 1240, 1610
	Chl-a	OC4 & Garcia's	$L_W@443, 490, 510, 555$
FLH	Abbot&Lettelier	$L_W@665, 680, 710$	
Turbidity	Dogliotti's	$L_W@665$ (Global) $L_W@665, 865$ (Regional)	
Daily mean PAR	Frouin's	$L_{TOA}@412, 443, 490, 510, 555, 620, 665$	
$K_d(490)$	KD2S	$L_W @ 490, 555$	

