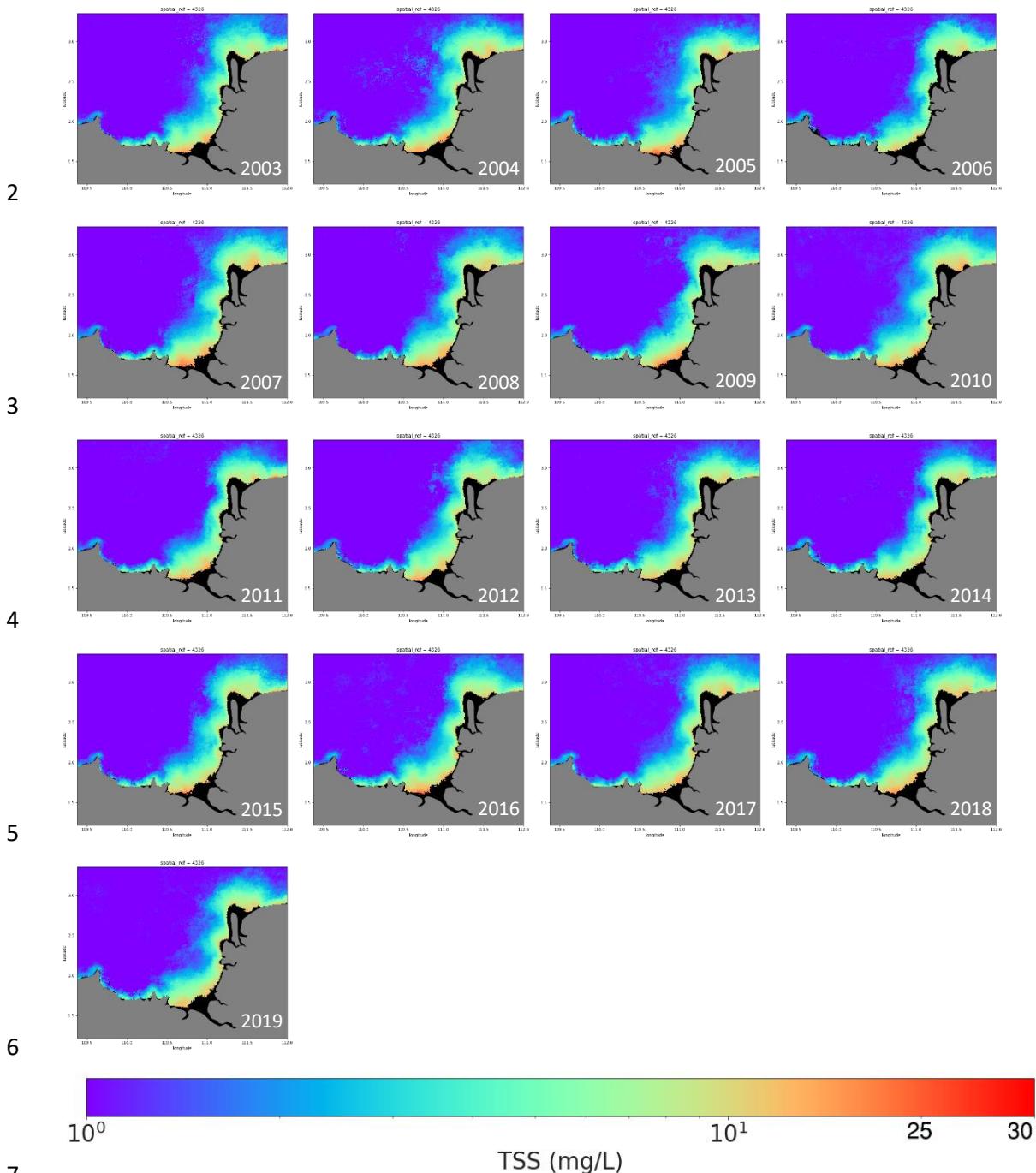
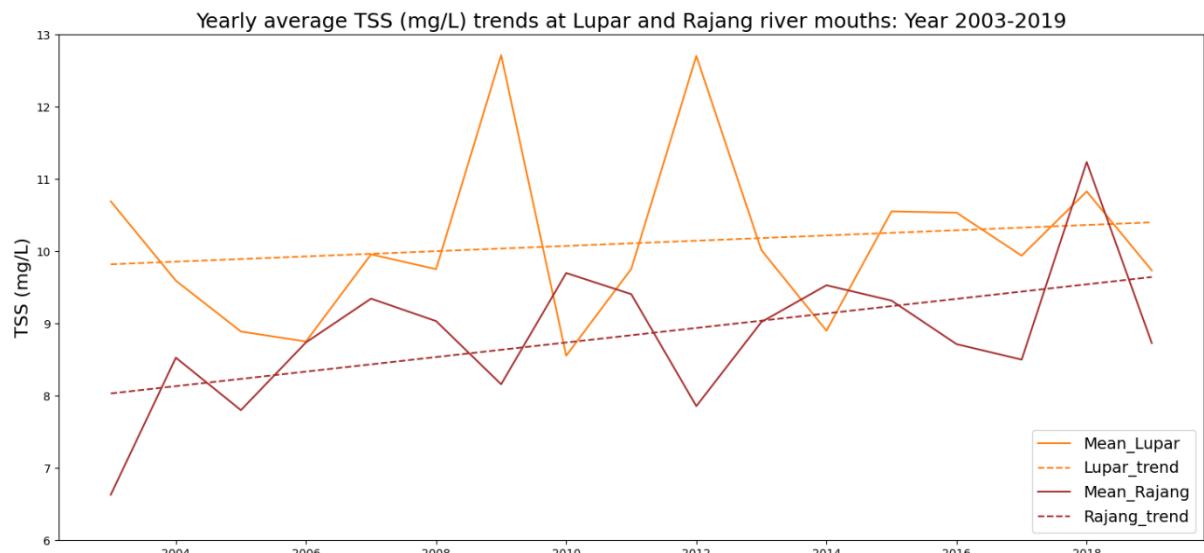
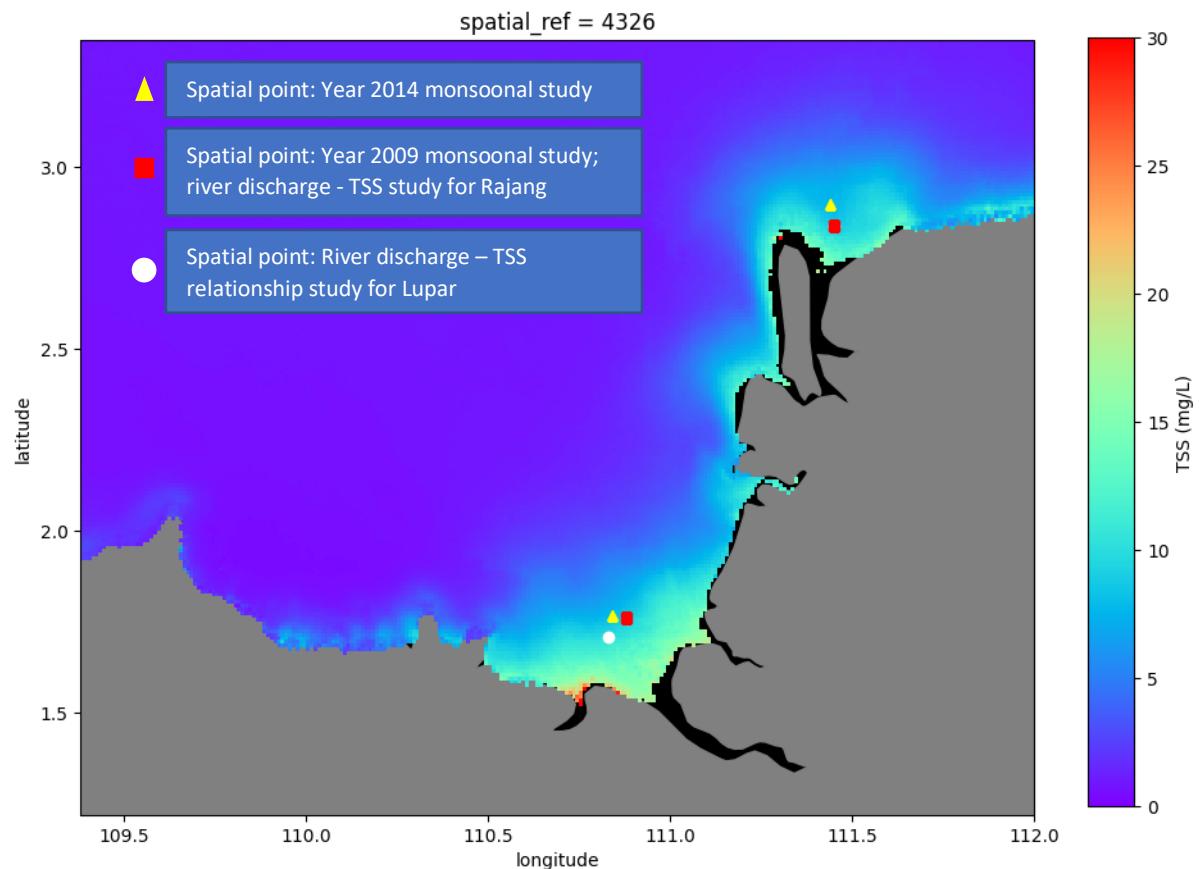
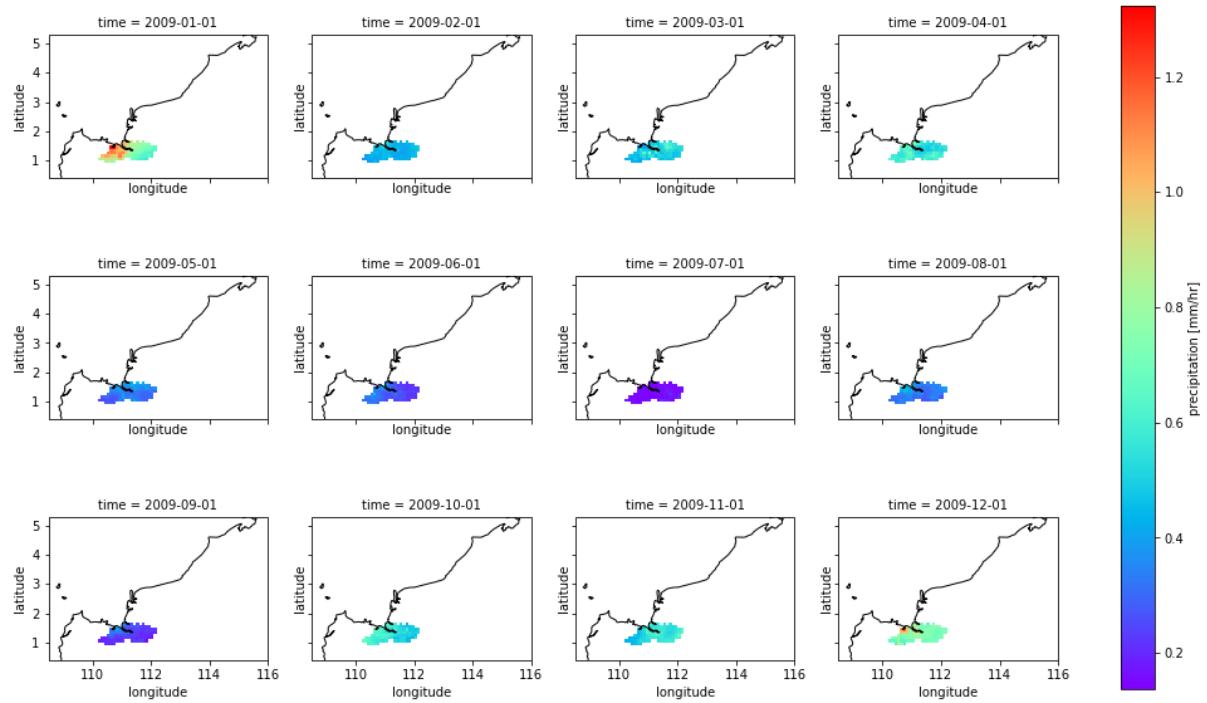
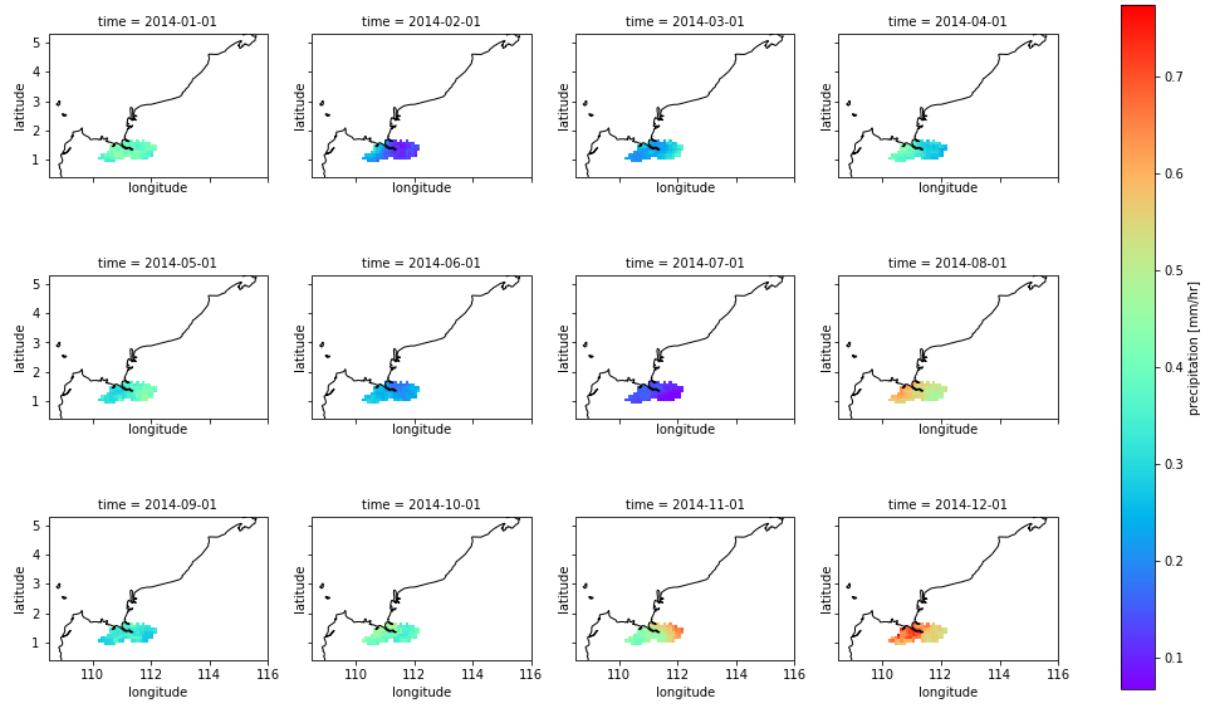
Supplementary Materials

S1: Annual spatial maps of TSS distribution in Sarawak's southwest coastal region calculated by means of the proposed TSS remote sensing algorithm.

11

12   S2: Time series and trend lines of average TSS release (mg/L) at the Lupar and Rajang river mouths from 2003 until 2019.

13

14

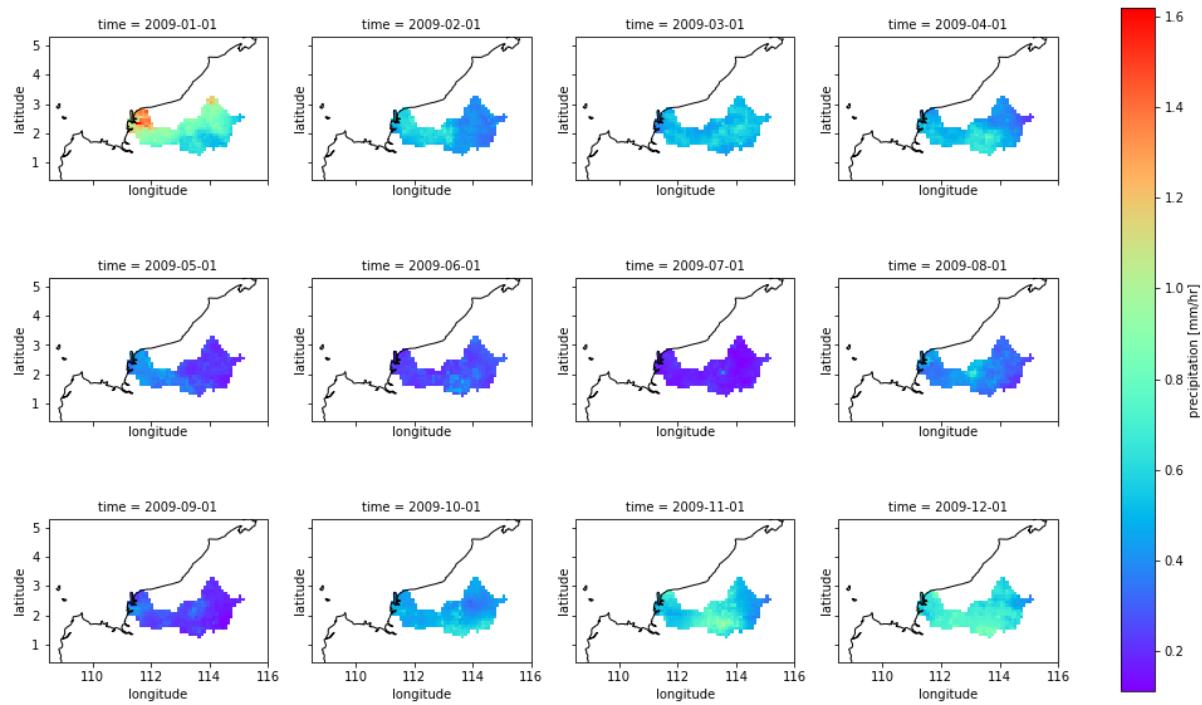
15   S3: Spatial map of TSS distribution with indicators for the Lupar and Rajang coastal river points (coloured markers) to
16   assess the variation of TSS values in relation to monsoonal and river discharge, as discussed in Section 3.2 and 3.3.

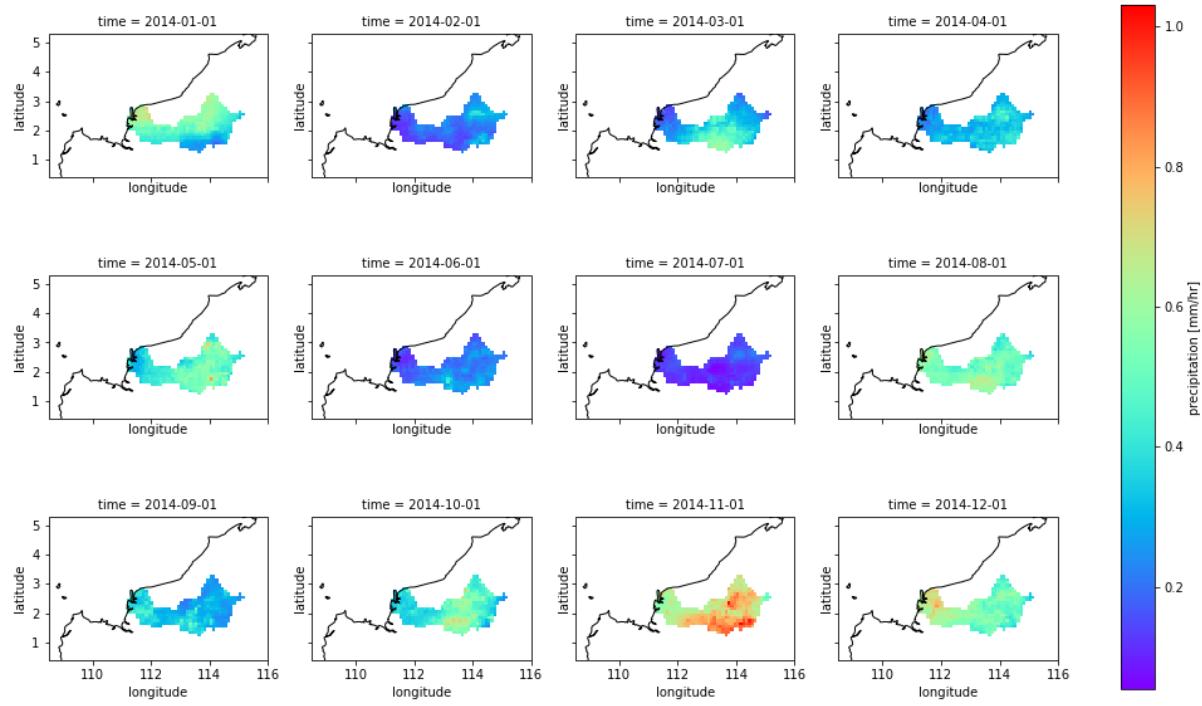
17

18

19   S4: Monthly precipitation values (mm/hr) extracted from GPM datasets at the Lupar river basin in year 2009.

20

21   S5: Monthly precipitation values (mm/hr) extracted from GPM datasets at the Lupar river basin in year 2014.

22

23

24

25   S6: Monthly precipitation values (mm/hr) extracted from GPM datasets at the Rajang river basin in year 2009.

26

27   S7: Monthly precipitation values (mm/hr) extracted from GPM datasets at the Rajang river basin in year 201.

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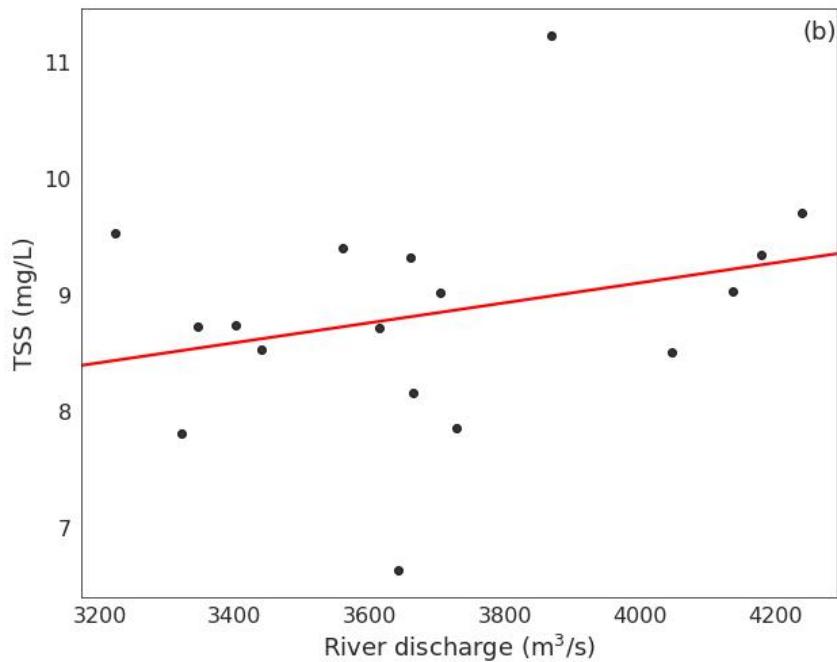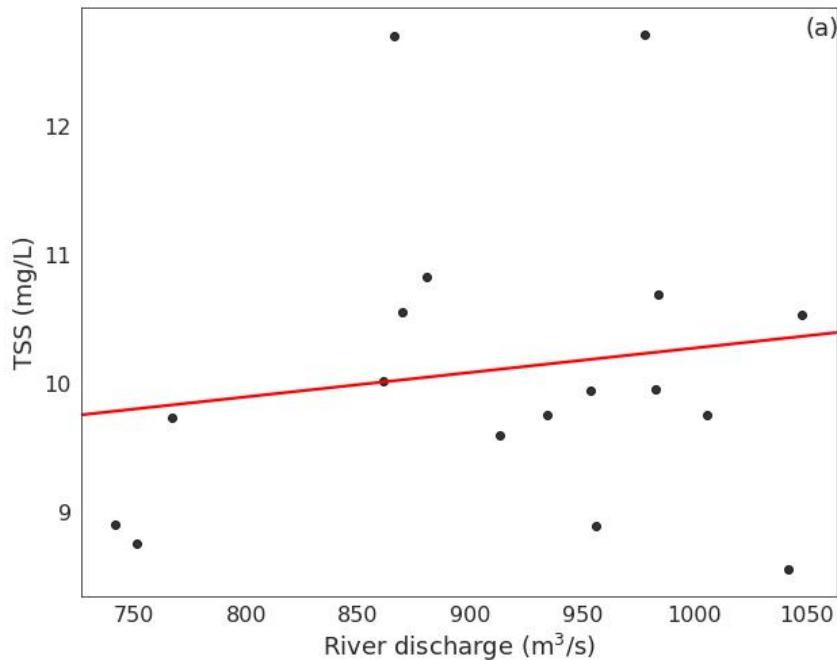
S8: Scatter plots of TSS concentration (mg/L) vs. river discharge (m³/s) for the Lupar (a) and Rajang (b) basins.

Table S1: Comparison of calibration and accuracy assessment between published MODIS(Aqua)-derived models, and proposed MODIS(Aqua) model for TSS retrieval. Calculation for bias and MAE are in log-transformed structure as adapted from Seegers et al. (2018) and Balasubramanian et al. (2020).

Parameter	Publication	Bands (nm)	Model	Bias	MAE	RMSE	adjusted R2	MRE (%)	CV
TSS	Jiang & Lu (2011)	Rrs(470), Rrs(555)	TSS = 1365.5[Rrs(470) + Rrs(555)]^2 - 369.08[Rrs(470)+Rrs(555)] + 27.216	5.7448	6.1579	18.5426	0.3476	1014.18	1.2745
	Zhang et al. (2010)	Rrs(488), Rrs(555), Rrs (645)	Log10(TSS) = 0.6311 + 22.2158[Rrs(555) + Rrs(645)] - 0.5239[Rrs(488)/Rrs(555)]	0.7049	1.9774	9.048	0.7243	-8.7216	-7.5375
	Kim et al. (2017)	Rrs(490), Rrs(555), Rrs(670)	Log(TSS) = 0.649 + 25.623*[Rrs(555) + Rrs(670)] - 0.646*[Rrs(490)/Rrs(555)]	0.6443	1.9227	8.9264	0.7218	-19.5701	-2.7432
	This study	Rrs(530), Rrs(666)	TSS = 21.238[(Rrs530/Rrs666)]^-1.272	0.9999	1.4732	5.1116	0.8182	13.8355	4.74

Table S2: Malaysian Marine Water Quality Standards for Total Suspended Solids (mg/L) taken from the Department of Environment (https://www.doe.gov.my/portalv1/wp-content/uploads/2019/04/BOOKLET-BI.pdf).

Parameter	Classification					
	Class 1	Class 2	Class 3	Interim Class E1	Interim Class E2	Interim Class E3
	Sensitive marine habitats	Fisheries (including Mariculture)	Industry, Commercial Activities & Coastal Settlements	Estuaries		
				Coastal plain	Lagoon	Complex Distributary Network
Total Suspended Solids (mg/L)	25.0	50.0	100.0	30.0	30.0	30.0

Table S3: Malaysian National Water Quality Standards for Total Suspended Solids (mg/L) taken from Department of Environment (https://www.doe.gov.my/portalv1/wp-content/uploads/2019/05/Standard-Kualiti-Air-Kebangsaan.pdf).

Parameter	Unit	Class					
		I	IIA	IIB	III	IV	V
Total Suspended Solids	mg/L	25	50	50	150	300	300