



*Supplement of*

## **Shoreline and land use–land cover changes along the 2004-tsunami-affected South Andaman coast: understanding changing hazard susceptibility**

**Vikas Ghadamode et al.**

*Correspondence to:* Anand K. Pandey ([akpandey@ngri.res.in](mailto:akpandey@ngri.res.in))

The copyright of individual parts of the supplement might differ from the article licence.

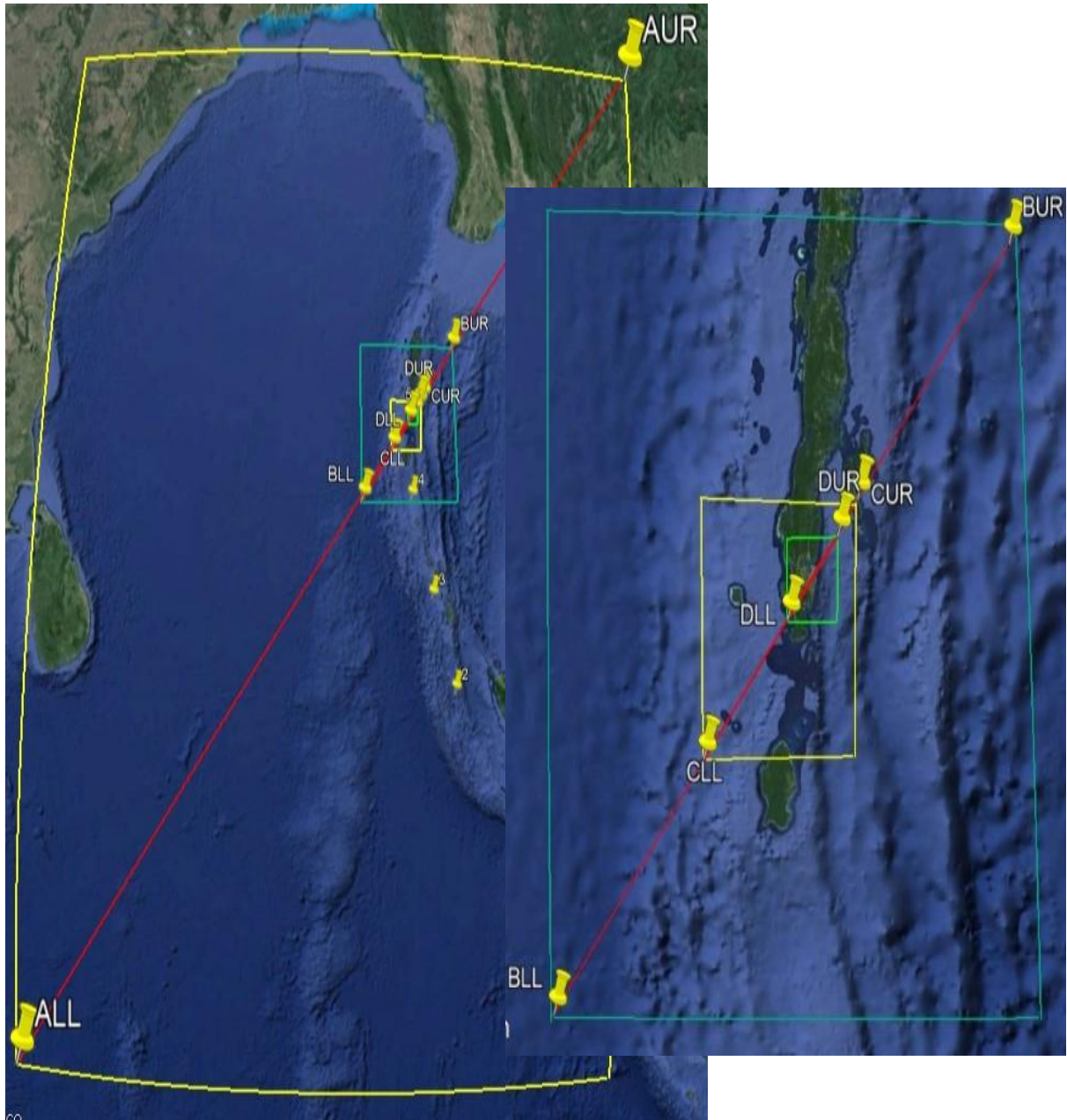


Figure S1: A-D grids used for the TUNAMI-N2 modeling in the present study (Source: Background images are from © Google Earth)

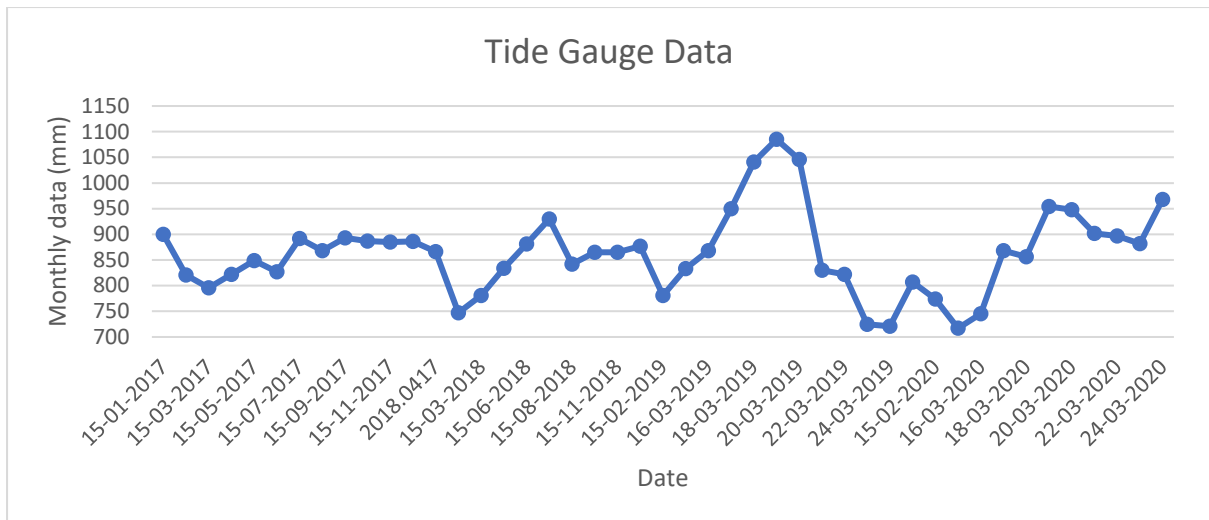


Figure S2: Monthly mean sea level data showing tide excursion (Tide Gauge data)

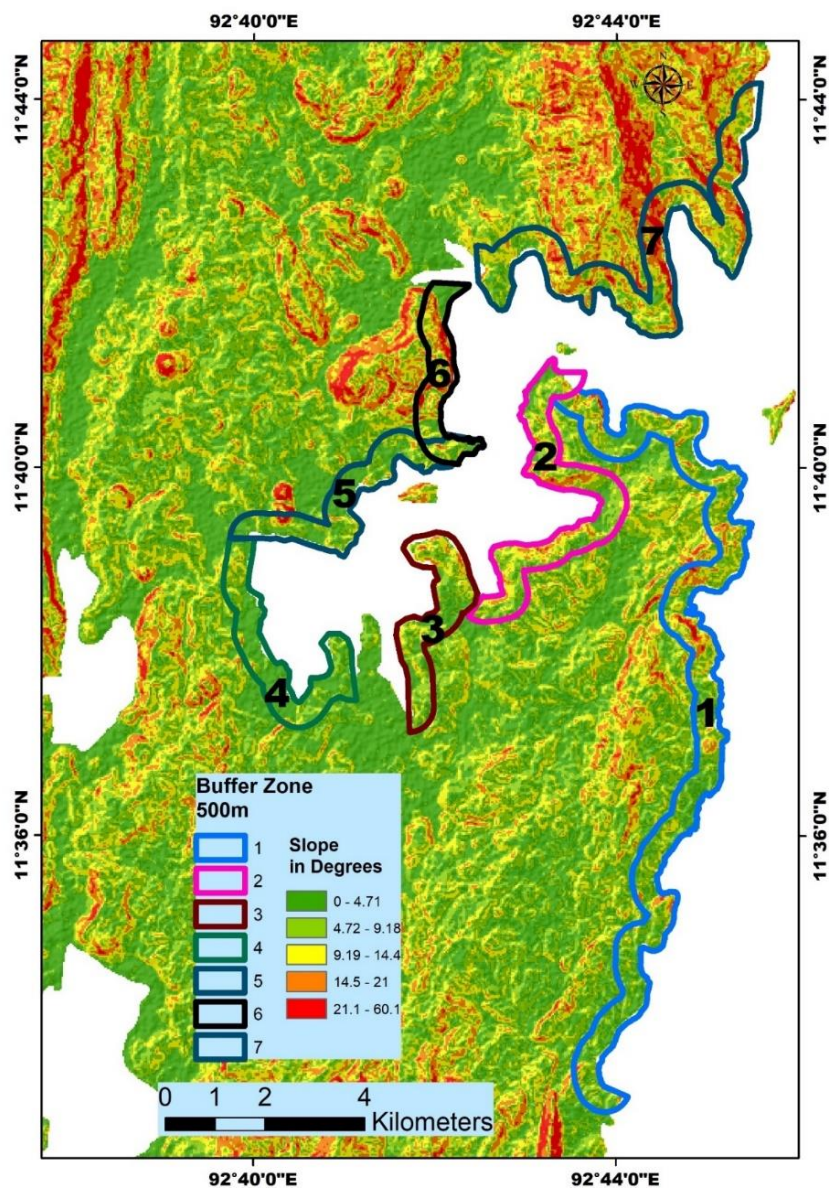


Figure S3: Slope Map showing 500m buffer marked along the shoreline

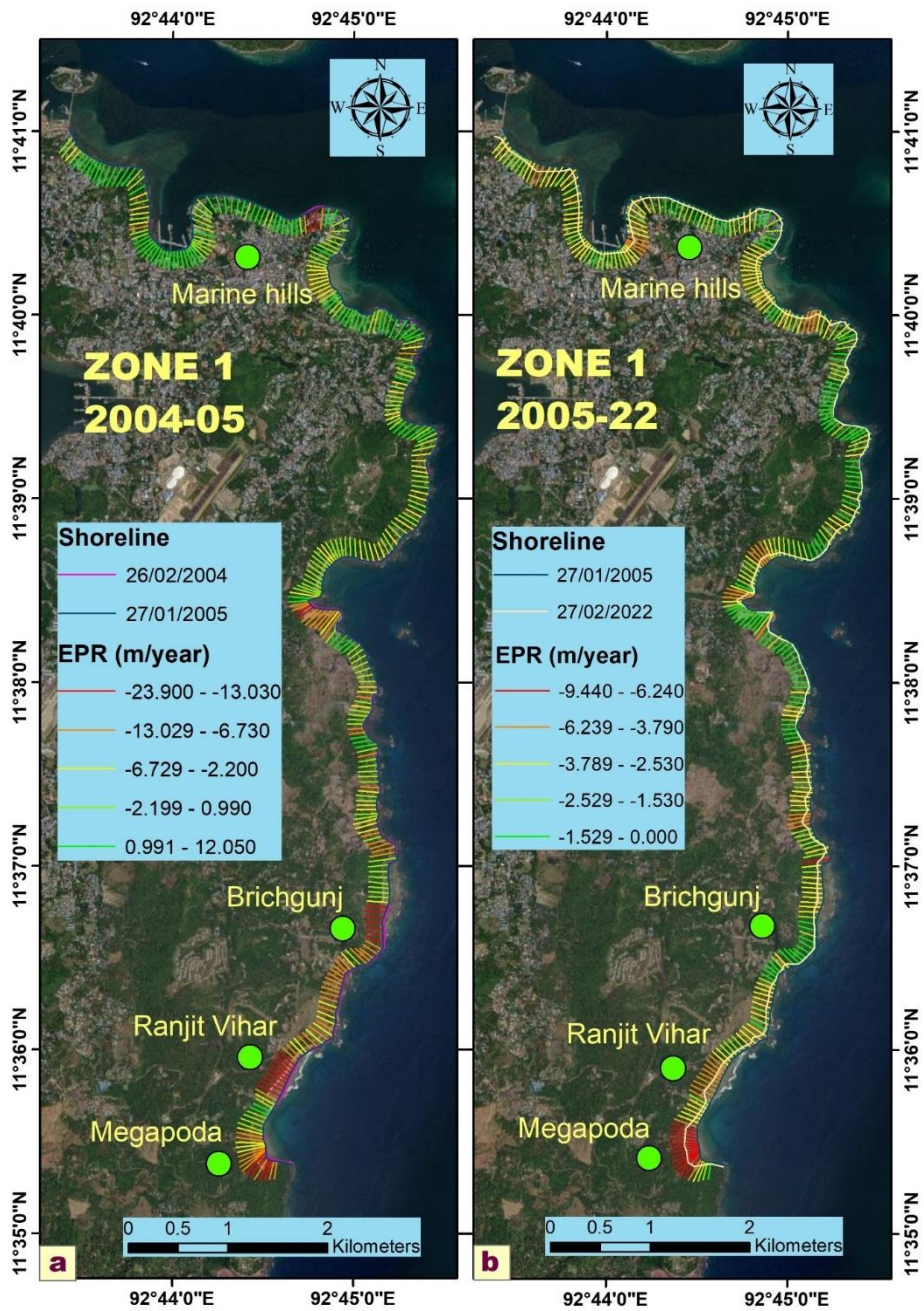


Figure S4: Analysis of the Erosion and Accretion rate in Zone 1 of the South Andaman shoreline between (a) 2004 to 2005 and (b) 2005-2022 using EPR methods (Source: Background images are from © Google Earth)

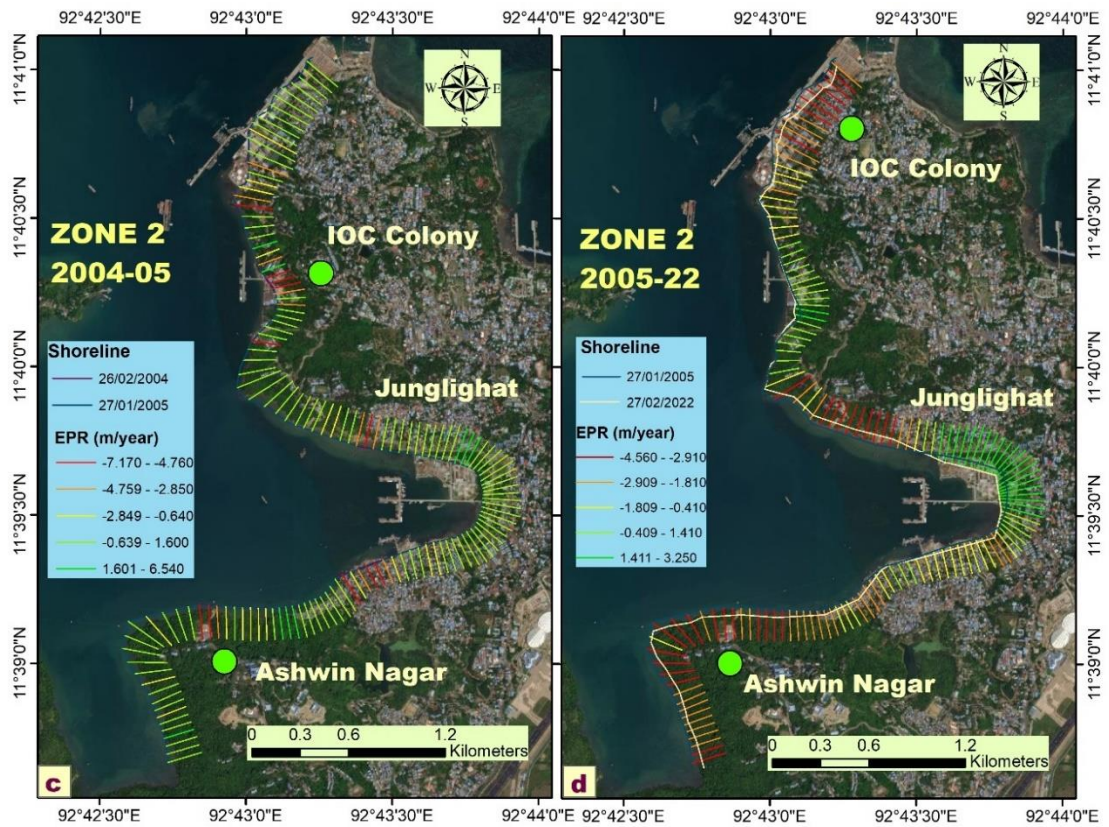


Figure S5: Erosion and Accretion rate occurred between (c) 2004-2005 and (d) 2005-2022 in Zone 2 of the South Andaman shoreline using EPR methods (Source: Background images are from © Google Earth).

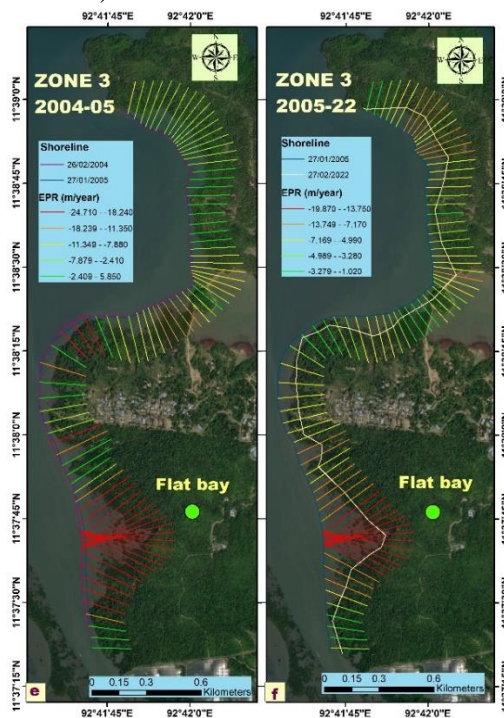


Figure S6: Erosion and Accretion rate occurred between (e) 2004-2005 and (f) 2005-2022 in Zone 3 of the South Andaman shoreline using EPR methods (Source: Background images are from © Google Earth).

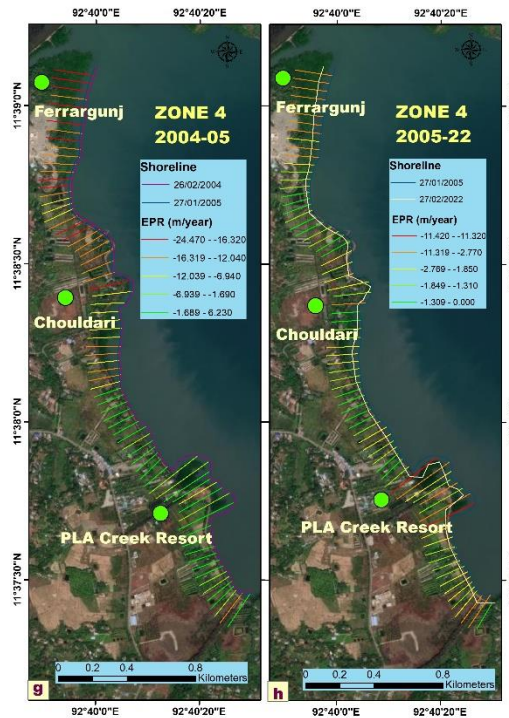


Figure S7: Erosion and Accretion rate occurred between (g) 2004-2005 and (h) 2005-2022 in Zone 4 of the South Andaman shoreline using EPR methods (Source: Background images are from © Google Earth)

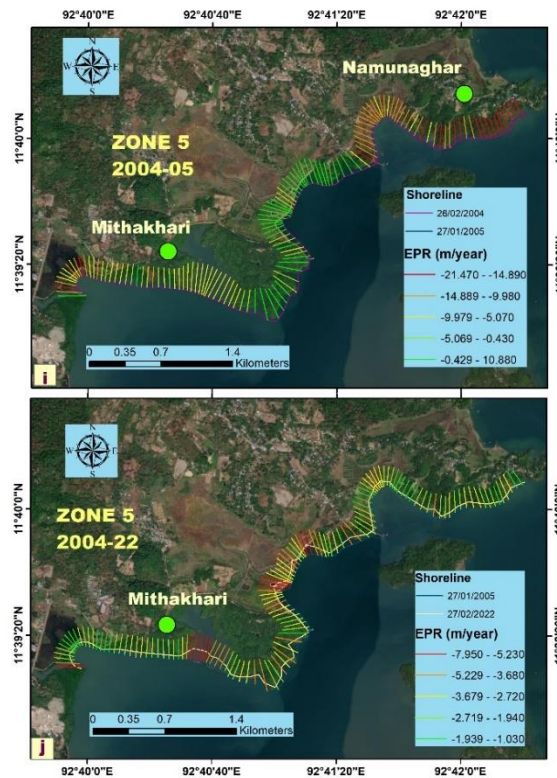


Figure S8: Erosion and Accretion rate occurred between (i) 2004-2005 and (j) 2005-2022 in Zone 5 of the South Andaman shoreline using EPR methods (Source: Background images are from © Google Earth)

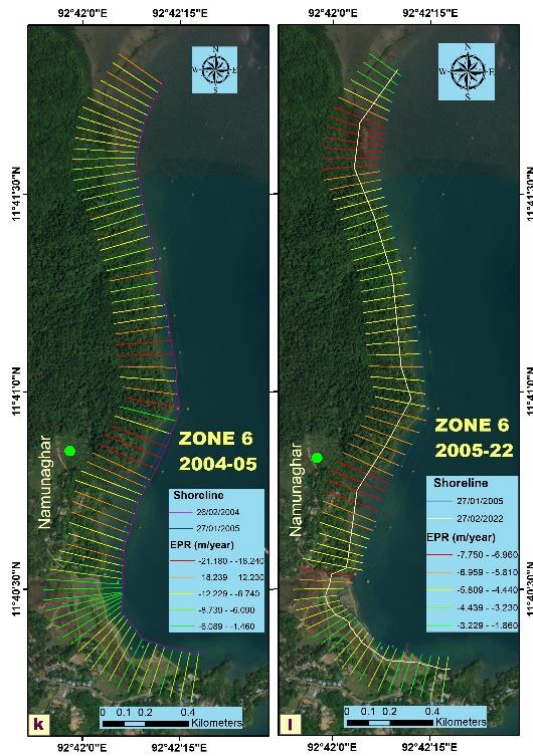


Figure S9: Erosion and Accretion rate occurred between (k) 2004-2005 and (l) 2005-2022 in Zone 6 of the South Andaman shoreline using EPR methods (Source: Background images are from © Google Earth)

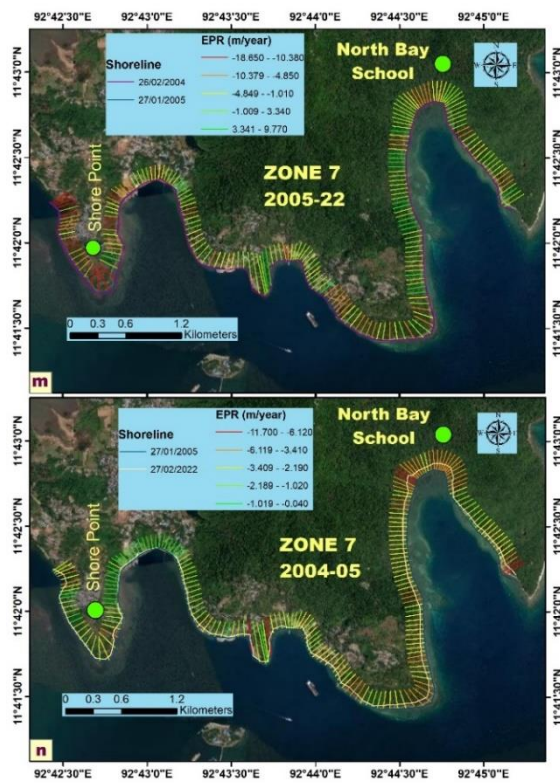


Figure S10: Erosion and Accretion rate occurred between (m) 2004-2005 and (n) 2005-2022 in Zone 7 of the South Andaman shoreline using EPR methods (Source: Background images are from © Google Earth)

Table S1: Uncertainty Calculation used in the DSAS tool

Positional Error (m)	2003	2004	2017	2018	2019	2020
Seasonal Error (Es))	5	5	5	5	5	5
Tidal fluctuation (Etd)	1.17	0.38	0.86	1.1	0.84	0.85
Shoreline proxy offset (Eo)	NA	NA	NA	NA	NA	NA
Measurement errors (m)	0	0	0	0	0	0
Georeferencing/Rectification error (Er)	0	0	0	0	0	0
Digitizing Error (Ed)	20	20	15	20	20	19
Toposheet survey offset (Et)	NA	NA	NA	NA	NA	NA
Pixel Error (Ep)	0	0	0	0	0	0
Total Shoreline position error (Esp) m	26.17	25.38	20.86	26.10	25.84	24.85
Year	2003-04	2004-05	2017-18	2018-19	2019-2020	2020-2021
Uncertainty	7.18	5.04	6.85	7.21	7.12	4.98

Table S2: Mean Slope of Area

Zone	AREA (Sq. Km)	MIN (Degrees)	MAX (Degrees)	RANGE (Degrees)	MEAN (Degrees)	STD (Degrees)
1	9.77	0	36.98	36.98	7.22	4.69
2	4.07	0	24.96	24.96	8.18	4.66
3	2.44	0	23.50	23.50	6.60	3.95
4	2.83	0	20.72	20.72	4.13	3.32
5	2.87	0	33.82	33.82	5.56	4.52
6	1.61	0	33.75	33.41	11.4	6.90
7	6.12	0	37.81	37.81	12.3	5.99

Table S3 Accuracy Assessment of LULC Classification

LULC Classes	2004		2005		2022	
	PA (%)	UA (%)	PA (%)	UA (%)	PA (%)	UA (%)
Built-Up	88.88	80	72.72	80	88.88	80
Forest	93.3	94.35	92.68	94.21	92.43	91.82
Inundation	100	90	88.88	80	90.90	100
Cropland	61.90	72.22	73.33	78.57	73.33	61
Water Bodies	100	80	100	70	90.90	100
Overall accuracy	90.11 %		89.69 %		90.30 %	
Kappa Statistics	0.78		0.76		0.79	

PA: Producer's Accuracy, UA: User's Accuracy