



Remote sensing analysis of the Tiber River sediment plume (Tyrrhenian Sea): spectral signature of erratic vs. persistent events

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During the last decade, several regions along the western Tyrrhenian coast have been dramatically affected by intense river runoffs, which delivered a significant amount of sediment off and along shore. A crucial question that coastal geomorphologists and marine scientists need to face is about the fate and impact of this impulsive sediment load, especially with respect to the historical trend, seasonal variability, and persistent events. A satellite-based analysis of these sediment discharges is a key ingredient for such a study since it represents the primary dataset for the recognition of coastal patterns of Total Suspended Matter (TSM) that may reflect erosional or depositional processes along the coasts. On this regard, we developed and implemented a TSM regional product from remote sensing, which was calibrated and validated by in situ measurements collected in the Tyrrhenian Sea. We discuss spatial patterns and spectral signature of the TSM that we observe during the 2012 high river discharge event of the Tiber River. Our analysis gives some insights on the main differences of the geomorphological impacts related to erratic vs persistent events.