

COASTAL WATER QUALITY ANALYSIS USING PLANET SCOPE CONSTELLATION

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For years, water quality has been monitored with great success using satellites. The most used satellite for this task has been Sentinel-2 and Landsat 8, with a spatial resolution of ten and thirty, respectively. Both satellites have a low temporal resolution of 5 days for Sentinel-2 and 16 days for Landsat 8. Nevertheless, in January 2021, Planet Scope launched the SuperDove satellite constellation, an 8-band satellite with a three-meter spatial and daily temporal resolution. The aim of this study is to compare the Planet satellite with highly used satellites for coastal water quality monitoring. In situ, Chlorophyll ($\mu\text{g/l}$) and Kd 490 measurements with Planet SuperDove products will be used to assess linear regression results. Acolite was used for atmospheric correction and remote sensing reflectance retrieval. The algorithms used for chlorophyll were OCX from OLCI and KD 490, provided by NASA Ocean Color. Planet SuperDove correlated well with the Chlorophyll ($R^2 = 0.8652$) and Kd490 ($R^2 = 0.7817$) satellite product versus in situ measurements. The chlorophyll R^2 is compared with other satellites (CZCS, Landsat 8, MODIS, Sentinel), being precisely in the same range from $R^2 = 0.84 - 0.85$. Similarly, the Kd 490 results can be compared to other satellites presented in the literature. PlanetScope SuperDove satellite demonstrated that it has a good potential for being used for coastal water quality monitoring, although more data and different study sites must be studied.