

## **Deriving Inherent Optical Properties from MERIS imagery and *in situ* measurement using Quasi-Analytical-Algorithm**

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### **Abstract**

The paper describes Inherent Optical Properties (IOP) of the Berau coastal waters derived from *in situ* measurements and Medium Resolution Imaging Spectrometer (MERIS). Field measurements of optical water, total suspended matter (TSM) and chlorophyll-a (Chl-a) concentrations were carried out during the 2007 dry season. During this period, only four MERIS data were coincident with *in situ* measurements: August 21, 28 and 31, 2007 and September 15, 2007; and only MERIS of August 31, 2007 was used in this study. The MERIS top-of-atmosphere radiances were atmospherically corrected using the MODTRAN radiative transfer model. The *in situ* optical measurements have been processed into Apparent Optical Properties (AOP), sub surface irradiance. The Remote sensing reflectance of *in situ* measurement as well as MERIS data were inverted into the IOP using quasi-analytical algorithm (QAA). The result indicated that coefficient of determination ( $R^2$ ) of backscattering coefficients of suspended particles ( $bbp$ ) increased with increasing wavelength, however the  $R^2$  of absorption spectra of phytoplankton ( $aph$ ) decreased with increasing wavelength.

Key words: QAA, MODTRAN, sub surface irradiance reflectance, remote sensing reflectance