**Changes to gotm code from v3c to v3d**

**New extinction methods added**

* Case (15) and case (16) added to temperature.f90
* Cases 15 and 16 added to observations.f90

*The Paulson & Simpson (1981) 9-stream extinction methods has attenuation coefficients (‘zdeta’ in observations.f90) based on pure water. Case (15) changes the first 2 coefficients based on Jerlov water types following Verevochkin & Startsev (2005). Case (16) changes the first coefficient based on Jerlov water types following Soloviev & Schlussel (1996).*

**Options for different extinction methods included in calculating the fraction of solar radiation absorbed within the cool-skin layer**

* Code added to airsea.f90

*The cool-skin code is based on Fairall et al. (1996b) they suggest an approximation of the Paulson & Simpson (1981) 9-band approximation, this approximation was then updated by Wick et al. (2005). This is now the default method. But I don’t see why we need approximations, let’s just use the full schemes we have, hence why I have added the different cases.*

**New cool skin options added**

* Code added to airsea.f90

*These cool skin options are very slightly edited versions of the code suggested by Joyce.*