

### Statistical Test for Threshold Significance

Method: F-test comparing nested GAM models with tensor product smooths

F-statistic: 1.012

p-value:

Significant at  $\alpha=0.05$ :

A significant test indicates that modeling separate moisture–DOM thermodynamics interactions before and after the threshold is statistically preferred.

Deviance explained (single model): 84.2%

Deviance explained (threshold model): 85.8%