



Incorporation of a new melt pond scheme into a GCM sea ice model component

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Melt ponds form on Arctic sea ice during the melting season and their presence affects the heat and mass balance of the ice cover. Towards the end of the melt season melt ponds cover up to 50% of the sea ice area decreasing the value of the surface albedo by up to 20%. Furthermore, once refrozen, ponds store heat up until they freeze completely, which can take up to three months.

We have developed a new melt pond model that is suitable for forecasting the presence of melt ponds based on sea ice conditions.

We have included our theory of melt pond evolution into the Los Alamos CICE sea ice model. We will present results to show the impact of the presence of a pond routine in CICE and present a long time series run up to 2007 with different forcing.

We shall focus our attention on the refreezing of melt ponds and the impact of the heat capacity of the refrozen melt ponds.