



Arctic sea-ice variability

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Surprisingly, the 2007 Arctic sea-ice event was largely unpredicted, even if extreme sea-ice conditions were observed almost every September month each year over the past 10 years (Perovich et al. 1999, 2003, Serreze et al. 2003 and Stroeve et al. 2005). Premises of an Arctic sea-ice thinning and of an Arctic ocean warming were reported nearly 20 years ago by Wadhams (1990) and Quadfasel (1991). So why the 2007 Arctic summer sea-ice minimum extent occurred as a complete surprise if it was not an extraordinary event? 2008 was another exceptional year characterized by an extreme sea-ice retreat approaching the 2007 summer minimum record. In 2008 an exceptional replenishment of the perennial ice by first year ice did occur in contrast with 2007 when such a replenishment did not happen. By itself that compensated for an exceptional loss of perennial ice observed in 2008. How well do we understand the 2007 and 2008 sea-ice extent minimum through modelling and data analysis including retrospective analyses of long-term observational records?