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Ice Action on Structures

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TOTAL S.A. - DGEP/DEV/ED/EC

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Recent years have seen many developments of modelling ice action on structures. Two main lines of approach have been followed. One line is to model the contact between ice and structure and use this knowledge to develop ice load calculation and also strength calculation methods. Even after these developments, it can be concluded that modelling the contact of ice is still rudimentary. The other line of thought investigates the ice failure process against structures. Developments include modelling ships breaking level ice as well as ice ridging and pile-up process against structures. Developments in these areas are reviewed. Practical applications of this knowledge are described. These include ice encroachment studies on structures in shallow water as well as development of Arctic transportation systems. The presentation is concluded by reviewing knowledge needed in applications as well as most important aspects still requiring scientific attention.