The present paper presents a general framework for integrity management of offshore steel jacket structures allowing for the risk based planning of inspections and maintenance activities with a joint consideration of all relevant deterioration and damage processes. The basic idea behind the suggested approach is to relate the relevant deterioration and damage processes, i.e. the exposure events, to damage states which in turn may be related to the overall integrity of the jacket structural system as measured through the Reserve Strength Ratio (RSR). This facilitates that any state of degradation, irrespective of the cause, can be assessed in terms of their impact on the annual probability of failure for the structure. Taking basis in data as well as subjective information regarding the annual occurrence probabilities of the relevant deterioration and damage processes, together with a probabilistic modeling of the quality of condition control, it is possible to assess the effect of condition control of each type of deterioration and damage phenomena. This then facilitates the development of a general framework for risk based integrity.
management. In the present work such a framework is formulated using Bayesian Probabilistic Nets (BPN) for evaluating the time varying global structural reliability of jackets subject to progressive deterioration of its members due to the combined effect of different sources of damage.