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Appraisal of the Long Term Subsidence Study of the Wadden Sea Region

3. Recommendations for Follow-up Studies from 1 July Onwards

The Appraisal by the Wadden Academy comprises a list of recommendations for follow-up studies compiled from input received from individual members of the Steering Committee.

The recommendation given in the Appraisal (in chapter 3) are listed below.

a) Ameland field case study

b) Follow-up study of the time-dependent subsidence:

1. Use experimental and theoretical methods to make a link between inelastic behaviour and creep of reservoir rocks, and incorporate this knowledge into the prediction of subsidence.

2. Clarify the impact of slow depletion zones within the reservoirs (aquifers, shales).

3. Analyse the time-dependent subsidence in very mature onshore Rotliegend gas fields, e.g. Suawoude and Roden, as a means to gain insight in late field life subsidence behaviour potentially relevant for the Wadden Sea gas fields.

4. Reduce the uncertainty in the rheological properties of the salt rock by using the existing data from the salt mining industry and conducting additional rock mechanics tests on the salt rock.

5. A single overall finite element model, combining the various processes that have been individually investigated thus far (salt flow, anomalous diffusion, creep, *etc*.), should be developed as to yield a single "best estimate" of subsidence rate and magnitude, with appropriate error bars.

The recommendations given by individual members of the Steering Committee are given in Table 1.

Table 1. Recommendations given by individual members of the Steering Committee.

Member	Recommendation given by individual member	Recommendation included in the Appraisal ?	Remark
Member 1	Ameland case study Compaction reservoir rock Aquifer depletion Salt flow	Yes (3a) Yes (3b1) Yes (3b2) Yes (3b4)	
Member 2	Ameland case study Onshore fields study	Yes (3a) Yes (3b3)	
Member 3	Ameland case study Compaction reservoir rock Salt flow	Yes (3a) Yes (3b1) Yes (3b4)	
Member 4	Ameland case study Onshore fields study List of various hypotheses to be tested against field data	Yes (3a) Yes (3b3) No	To be discussed and defined in the preparation of *Terms of Reference* for the Ameland case study (3a) and Onshore fields studies (3b3)
Member 5	Ameland case study Compaction reservoir rock Aquifer depletion Salt flow	Yes (3a) Yes (3b1) Yes (3b2) Yes (3b4)	
Member 6	Ameland case study Salt flow Finite element model Ameland field	Yes (3a) Yes (3b4) Yes (3b5)	

An abbreviated version of the minutes of all the meetings, available on the Wadden Academy website (http://www.waddenacademie.nl/), gives more details on recommendations by the members of the Steering Committee throughout the whole project.