

Table 2.Milestones							
Milestone no.	Milestone name	Work package no	Lead beneficiary	Delivery date from Annex 1	Achieved Yes/No	Actual/forecast achievement date	Comments
M123	Submarine transect of Arctic		P05	08/2012	Yes	21/07/2012	The Milestone has been reached - The analysis of submarine sonar data from previous submarine cruises, especially the most recent ones of 2004 and 2007, is complete and results have been published in a paper in Journal of Geophysical Research (Wadhams, Hughes and Rodrigues, 2011) and a further paper, focussing on data from the environmentally sensitive Beaufort Sea where the sea ice disappeared later in the same year, in Cold Regions Science and Technology (Wadhams, 2012). A new planned submarine experiment has now been scheduled for April 2014.
M124	First AUV experiment	WP01	P05	08/2012	Yes	21/07/2012	The Milestone has been reached - This experiment has been successfully accomplished during July 2012 in an experiment, just completed, using the "Arctic Sunrise" in the sea ice of Fram Strait and the Seabed AUV chartered from Woods Hole Oceanographic Institution (Dr H Singh). Five ridged floes ranging from first year ice to extremely old multi year ice (a stamukha, formerly grounded

M133 M212	ACOBAR acoustic floats Solicit user requirements	WP01 WP02	CO01 P11	10/2012 08/2011	No Yes	- 23/09/2011	<p>off Siberia) were successfully mapped from below using the AUV and simultaneously from above using a laser scanning system, the first time that such high-quality simultaneity has been achieved. One experiment was overflowed by the Alfred Wegener Institute Polar 5 aircraft with e-m thickness mapping, and the ship emplaced itself within the box of high-resolution quadpol Radarsat 2 imagery provided by Norwegian Meteorological Institute. In both cases this provides additional validation for the thickness mapping against other types of sensor.</p> <p>The milestone has been reached - A user requirement questionnaire was produced in May, and met.no started distributing it to sea ice information users. This incorporates questions to evaluate the needs of sea ice information users for projects including; ACCESS (climate change information), SIDARUS (needs for new types of sea ice information product), and ICEMAR (delivery of sea ice information to ships). Solicitation and receipt of responses is ongoing, with currently 24 organisations having replied. Of these 12 (50%) have expressed a need</p>
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M241	Design and manufacture of low cost autonomous buoy for measuring under ice noise from ice going ship	WP02	P17	02/2012	Yes	27/02/2012	<p>for information to help them plan for the effects of climate change. These organisations include developers of climate models, shipping companies, oil companies, government, and suppliers of air logistics. Work is underway to assess patterns in the responses that will determine what follow-up questions need to be asked when ACCESS starts producing climate model scenarios.</p> <p>The milestone has been reached - The challenge here was to design a robust structure able to be deployed at 50m depth, to automatically record and analyse acoustic events but most importantly, to monitor continuous noise from shipping activity. These objectives imply dealing with many factors like environmental pressure, power and software requirements. This design is now complete and the first at sea tests were successfully performed.</p>
M251	Design and fabrication of lateral stress sensor	WP02	P09	05/2012	Yes	12/07/2012	<p>HSVA's work task was the design and fabrication of a stress buoy for determination of lateral stresses in Arctic waters. The principle concept of using a very rigid and stiff inner cylinder having a softer outer shell with a fluid in between was discussed and agreed with partner SAMS .</p>

							The idea was to use an existing Spar buoy model as inner structure and to apply relevant modifications for achievement of the measuring purpose. FEM-calculation showed, that the existing cylindrical structure was not strong enough and will be deformed under assumed pressure of 3 MPa. In a next step the lateral pressure assumption of 3 MPa will be verified and strengthening possibilities will be checked. Consequently the partner decided to postpone the buoy deployment by one year to summer 2013. The Milestone should be moved by one year to month 27.
M321	Review of Arctic aquaculture, governance issues and impacts of climate change	WP03	P08	08/2012	Yes	26/11/2012	The Milestone has been reached. 3 additional months were needed due to several factors, primarily difficulties with informants in other countries. The review has been sent on November 26, 2012.
M411	First estimates of oil and gas production costs for different ice scenarios	WP04	P16	08/2011	Yes	26/09/2011	The milestone has been reached - Different production scenarios have been evaluated and first cost estimations have been prepared. These costs depend on the complex interdependency between the main product (gas or oil) with volume, associated process steps etc. and the production location with its environmental constraints. Each production

M412	Estimation of oil and gas production costs for different ice scenarios com	WP04	P16	06/2012	Yes	28/06/2012	scenario has its specific implications towards the related required base station on land with infrastructural implications etc. so that further detailed work has to be carried in turn of the ACCESS project. A Report has been prepared summarizing available technologie for exploration and exploitation of hydrocarbons under Arctic conditions. A generic approach has been followed in order to anticipate a wide range of possible ice scenarios in the future. Extensive evaluations have been conducted for costs related to the ressource production using the identified technology approaches. The Report has been provided to related Project Partners (WP4).
M461	Synthesis of regulations, agreements, legislation relating to oil and gas extraction sector. Report to carry analysis of shortfalls and evaluation of options to address these, as well end-user evaluat	WP04	P03	03/2012	Yes	31/03/2012	Milestone achieved as work formed a major component of contribution to D5.11. This deliverable (and Milestone MS5.11) achieved on time with delivery of Final Report at month 13. All components of intended work for the Deliverable and Milestone were satisfactorily completed
M511	Overview of existing regulatory instruments	WP05	P03	03/2012	Yes	31/03/2012	Milestone achieved on time with delivery of Final Report at month 13. All components of intended work for the Deliverable and Milestone were satisfactorily completed
M521	Identification of gaps in	WP05	P03	03/2012	Yes	30/04/2012	Milestone achieved with

	governance within this framework						delivery of Final Report at month 14 - one months extension to milestone/delivery deadline was requested and granted. All components of intended work for the Deliverable and Milestone were satisfactorily completed.
M561	Level of participation of arctic indigenous peoples in the present Arctic governance process	WP05	P26	07/2012	No	-	
M581	Development of MSP concept and principal framework – presentation of model, and subsequent versions	WP05	P03	03/2012	Yes	31/03/2012	Milestone achieved on time with delivery of MSP project report/update at month 13. All components of intended work for the Deliverable and Milestone were satisfactorily completed
M591	Links between main economic activities studied in WP2-4 identified	WP05	P03	08/2012	No	-	
M621	ACCESS web-site	WP06	CO01	08/2011	Yes	12/09/2011	The milestone has been reached - Website launched on September 12th
M623	International workshop on on Noise impacts of the foreseeable increase of activities in the Arctic and on the mitigation measures that would be needed.	WP06	P17	02/2013	No	-	
M631	Data management system - climate and non climate	WP06	P11	08/2011	Yes	05/12/2011	The milestone has been reached - The ACCESS data management system has two main parts. One component handles climate related data and one non-climate related data. The climate related component is hosted by METNO and the non-climate

M801	External Boards engagement	WP08	P02	08/2011	Yes	20/09/2011	<p>related by NERC. The non-climate component is a pure FTP service where data may be stored. Metadata can be ingested (or even entered) in the climate component allowing users to discover both types of data through the data discovery interface hosted at <a href="http://access.met.no/metamod/">http://access.met.no/metamod/</a>. In addition to these two components a wiki service has been established to help the two communities communicate concerning ACCESS datasets. This milestone is delayed due to a system freeze at METNO as a new computer building was taken into use mid 2011. During the transition from old to new computer rooms, only existing systems were maintained.</p> <p>External boards engagement: For the stakeholder and endusers forum (SEF) and the advisory board (AB) candidates have been set up by the the steering committee and suggestions by ACCESS partners. The respective candidates have been contacted.</p>
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