



Australia's National
Science Agency

GISERA | Gas Industry Social and Environmental Research Alliance

Progress report

Baseline seismic monitoring of the Canning Basin



Australian Government
Department of Industry, Science,
Energy and Resources



Supported by
Government of
South Australia



Progress against project milestones

Progress against milestones/tasks are approved by the GISERA Director, acting with authority in accordance with the [GISERA Alliance Agreement](#).

Progress against project milestones/tasks is indicated by two methods: Traffic light reports and descriptive Project schedule reports.

1. Traffic light reports in the Project Schedule Table below show progress using a simple colour code:

- **Green:**

- Milestone fully met according to schedule.
- Project is expected to continue to deliver according to plan.
- Milestone payment is approved.

- **Amber:**

- Milestone largely met according to schedule.
- Project has experienced delays or difficulties that will be overcome by next milestone, enabling project to return to delivery according to plan by next milestone.
- Milestone payment is withheld.
- Milestone payment withheld for second of two successive amber lights; project review initiated and undertaken by GISERA Director.

- **Red:**

- Milestone not met according to schedule.
- Problems in meeting milestone are likely to impact subsequent project delivery, such that revisions to project timing, scope or budget must be considered.
- Milestone payment is withheld.
- Project review initiated by GISERA Director.

2. Progress Schedule Reports outline task objectives and outputs and describe, in the 'progress report' section, the means and extent to which progress towards tasks has been made.

Project schedule table

TASK NUMBER	TASK DESCRIPTION	SCHEDULED START	SCHEDULED FINISH	COMMENT
Task 1	Identification of Potential Seismic Sources	1 Jul-21	31 Aug-21	Completed
Task 2	Establishing a CSIRO data centre with appropriate data workflows	1 Sept-21	31 Aug-24	
Task 3	1 st Interim Report	1 Apr-22	30 Jun-22	Completed
Task 4	Publication platform development	1 Nov-22	28 Feb-25	
Task 5	Refining geological models	1 Nov-22	31 Oct-24	
Task 6	2nd Interim Report	1 Apr-23	30 Sept-23	
Task 7	3rd Interim Report	1 Apr-24	30 Jun-24	
Task 8	Final Report	1 Mar-24	30 Apr-25	
Task 9	Communicate findings to stakeholders	1 May-25	30 Jun-25	

Project schedule report

TASK 1: Identification of Potential Seismic Sources

BACKGROUND

The identification of existing seismic sources including man-made ones prior to the installation of the network is critical in discrimination in later stages.

TASK OBJECTIVES

Conduct desktop study to identify and map existing seismic sources from legacy data.

TASK OUTPUTS AND SPECIFIC DELIVERABLES:

2D maps of seismic sources and their potential impact on the planned seismic array. It will provide input to the fine tuning on the location of the planned seismic array.

PROGRESS REPORT

This task is complete.

- The shapefiles of the locations of the road network, petroleum licenses, mines (both historical and operating ones) and proposed seismic monitoring station locations have been obtained from the Geological Survey of Western Australia and Landgate (Government of Western Australia).
- Historical seismic event information has been sourced from Geoscience Australia and IRIS earthquake catalogues.
- Reproducible python-based 2D mapping scripts have been developed to map this information.
- The mapped spatial information of road network, petroleum licenses and mine locations are assessed as potential source generators with respect to the station locations.

TASK 2: Establishing a CSIRO data centre with appropriate data workflows to detect and locate seismic activity.

This task is due for completion August 2024.

TASK 3: 1st Interim Report

BACKGROUND

The desktop study regarding the potential seismic sources aims to determine the location of existing sources, classify them, and provide input to the network design. The data centre will automatically retrieve the data from Geoscience Australia and will apply many processing steps in the background to the raw data to detect and locate earthquakes.

TASK OBJECTIVES

Provide a general outline of the potential seismic sources and provide input to the seismic network design (GSWA Task). Provide a preliminary assessment of the data centre's capabilities and core functions.

TASK OUTPUTS AND SPECIFIC DELIVERABLES:

A detailed report showing the results of the desktop study of seismic sources through maps and digital datasets. Assessment of the capabilities of the data centre with the first batch of the data coming from the seismic network.

PROGRESS REPORT

This task is complete. The current progress of the project is captured in the first interim report which is publicly available on the GISERA website via this [link](#).

TASK 4: Publication platform development

This task is due for completion February 2025.

TASK 5: Refining geological models

This task is due for completion October 2024.

TASK 6: 2nd Interim Report

BACKGROUND

The data centre will automatically retrieve the data from Geoscience Australia and will apply a number of processing steps in the background to the raw data to detect and locate seismic activity. The publication platform is for disseminating information about detected seismic events to the public.

TASK OBJECTIVES

Provide an update of the data centre functionality supported with real data examples. Initial assessment of the publication platform.

TASK OUTPUTS AND SPECIFIC DELIVERABLES:

Examples of detected local seismic activity: location maps, magnitude information. Demonstration of the publication platform through screenshots as given in the report.

PROGRESS REPORT


This task will be complete end of September 2023.

Variations to Project Order

Changes to research Project Orders are approved by the GISERA Director, acting with authority, in accordance with the [GISERA Alliance Agreement](#). Any variations above the GISERA Director's delegation require the approval of the relevant GISERA Research Advisory Committee.

The table below details variations to research Project Order.

Register of changes to Research Project Order

DATE	ISSUE	ACTION	AUTHORISATION
23/06/2023	Delays have been experienced in data transmission from the seismic network, as a result of Cyclone Ellie in early 2023	Milestone 6 extended from June 2023 to September 2023	

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GISERA is a collaboration between CSIRO, Commonwealth and state governments and industry established to undertake publicly-reported independent research. The purpose of GISERA is to provide quality assured scientific research and information to communities living in gas development regions focusing on social and environmental topics including: groundwater and surface water, greenhouse gas emissions, biodiversity, land management, the marine environment, and socio-economic impacts. The governance structure for GISERA is designed to provide for and protect research independence and transparency of research.