



SHEER WP3
6 Months Progress Report, 24.10.2016
(WP Leader – Stanisław Lasocki)

1. Task 3.2, Monitoring of induced seismicity (Task Leader - Simone Cesca)

1.1 List of the staff actively involved in the WP:

- Dr Simone Cesca, Task leader, GFZ Potsdam
- Dr Jose Angel Lopez Comino, GFZ Potsdam
- Dr Daniela Kühn, GFZ Potsdam
- Dr Janusz Mirek, IGF PAN
- Msc. Eng. Wojciech Białoń, IGF PAS
- Msc. Eng. Szymon Cielesta, IGF PAS
- Msc. Eng. Mateusz Lasak, IGF PAS

1.2 Objectives expected after 18 months

- Maintain the operation of the surface monitoring of the Wysin site.
- Perform the side short-term deployment at the Groningen field, Netherland

1.3 A summary of progress towards objectives and details for each task in the first six months:

- The surface installation in Poland, operating since fall 2015, was regularly maintained, instrumentation controlled, data stored and controlled; the deployment belonging to GFZ (6 BB and 9 SP seismometers) is ensured until end of October 2016, hydraulic fracturing operations conducted by site operator PGNiG were finished in August 2016.
- In April 2016 two of three borehole seismometers in GW3S and GW4S installed by AMRA were changed to seismometers owned by IGF PAS. Previously mounted seismometers didn't work properly.
- In June 2016, before fracking, three SP seismometers were installed on the ground in GW1S, GW3S and GW4S by IGF PAS.
- A side deployment of a small-scale seismic array was performed in the Netherland, at the Wittewierum site (Groningen field).
- Testing wireless data communication within a small-scale installation.
- A coherency based event detector was developed, tested and applied (see further details in report WP4) to assess microseismicity at hydrofrac environments.

1.4 Highlight clearly significant results:

- Surface network at Wysin recording continuously for the whole 6 months period, collecting seismic data before, during and after hydraulic fracturing operations.
- Surface small-scale array recording continuously for the whole short-term installation at Wittewierum, Netherlands.
- Successful wireless data communication suitable for small-scale array installations.
- Successful testing detection algorithm on realistic synthetic dataset (see previous reports of WP3 and WP4).

- Generation automated and revised detection catalogues for the Wysin site, before and during hydraulic fracturing operations (months of May and June 2016).

1.5 If applicable, explain the reasons for major deviations from Annex I and their impact on other tasks.

Not applicable

1.6 If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning.

Not applicable.

1.7 If applicable, propose corrective actions.

Not applicable

1.8 Publications and papers in print

None: we list our contributions under WP4.

2. Task 3.3, Monitoring of groundwater condition (Task Leader - Andrew Gunning)

2.1 List of the staff actively involved in the WP:

- Andrew Gunning, RSKW, Task leader, joined May-2015
- Brian Anderson, RSKW, joined May-2015
- Dr Catherine Isherwood, RSKW, joined August-2015
- Prof. Paul Younger, Glasgow University, joined May-2015
- Dr Neil Burnside, Glasgow University, joined May-2015
- Dr Nelly Montcoudiol, Glasgow University, joined August 2015

2.2 Objectives expected after 18 months

Monitoring of groundwater condition

2.3 A summary of progress towards objectives and details for each task in the recent six months

WP 3.3 is ongoing. Initial work was undertaken in the first six-month session and monitoring has been underway since December 2015. To date, eight field visits and sampling rounds have been undertaken and continuous monitoring is in place at the four boreholes. The work is being led by Drs Catherine Isherwood and Nelly Montcoudiol with assistance from other RSKW and Glasgow University staff as necessary.

2.4 Highlight clearly significant results

Baseline monitoring was completed in June, when the hydraulic fracturing process was begun. Post-fracturing monitoring is ongoing.

Samples of the frac fluid and flowback fluid were provided courtesy of PGNiG and were analysed to identify key trigger species that might indicate escape of either into the groundwater. The laboratory analysis schedule has been updated based on the findings from these analyses and the results from the baseline water analyses.

2.5 If applicable, explain the reasons for major deviations from Annex I and their impact on other tasks

Not applicable

2.6 If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning

Not applicable

2.7 If applicable, propose corrective actions.

Not applicable

2.8 Publications and papers in print

None

3. Task 3.4, Air pollution monitoring (Task Leader - Janusz Jarosławski)

3.1 List of the staff actively involved in the WP:

Janusz Jarosławski, Task leader

3.2 Objectives expected after 18 months

It is expected that between 12th and 18th month all trace gases and particulate matter listed in the air quality monitoring plan are measured continuously and the measurement data after verification and validation procedures are sent to the database on a monthly basis ready for use as one of tools in analysis performed within the framework of WP6 tasks

3.3 A summary of progress towards objectives and details for each task in the recent six months

Continuous measurements of all planned air quality parameters have been continued. Monthly data sets are available for the period from May to September 2016. Available data covers over 97% of total measurement time. Complete set of air quality parameters is available. Actually measurements are performed in accordance with the monitoring plan.

3.4 Highlight clearly significant results

Air quality data during hydrofracturing stage of shale gas exploration/exploitation process has been successfully collected.

3.5 If applicable, explain the reasons for major deviations from Annex I and their impact on other tasks

Not applicable

3.6 If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning

Not applicable

3.7 If applicable, propose corrective actions.

Not applicable

3.8 Publications and papers in print

No publications concerning Task 3.4 are available at the moment.

Deliverables due at the date

Please complete this table if deliverables are due for the reporting period

Table 1. Deliverables due at the date											
Del. no.	Deliverable name	Version	WP no.	Lead beneficiary	Nature	Dissemination level¹	Delivery date from Annex I (proj month)	Actual / Forecast delivery date Dd/mm/yy yy	Status No submitted/ Submitted	Contractual Yes/No	Comments

¹PU
PP
RE
CO

Public
Restricted to other programme participants (including the Commission Services)
Restricted to a group specified by the consortium (including the Commission Services)
Confidential, only for members of the consortium (including the Commission Services)

