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TWINNING TO SUSTAINABLE ENERGY TRANSITION

WP2: BUILDING RESEARCH EXCELLENCE

BUILDING RESEARCH EXCELLENCE OF THE IG/FORTH

DELIVERABLE 2.5– REPORT ON TRAINING FOR JOINT RESEARCH PUBLICATIONS

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HISTORY OF CHANGES

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1. ABSTRACT

2. PROJECT BACKGROUND AND CHALLENGES

One of the main goals of the project was to join forces to produce high quality scientific publications. Through staff exchanges, expert visits and joint scientific work during the project this goal was successfully achieved. As a result, six publications co-authored by the involved research groups have been made, with additional ones still in progress. The following table summarizes the different journals with their respective impact factors:

Journal	Impact Factor	Number of published articles	Number of involved research groups
<i>International Journal of Hydrogen Energy</i>	8.3 (2024)	1	2
<i>Gas Science and Engineering</i>	5.5 (2024)	1	2
<i>Greenhouse Gases: Science and Technology</i>	2.8 (2024)	1	2
<i>Sustainability</i>	3.3 (2024)	1	2
<i>Hydrogen</i>	3.0 (2025)	1	2
<i>Geoenergy Science and Engineering</i>	5.5 (2024)	1	2

The target regarding journal impact factor has clearly been achieved. The detailed references of the joint publications are given at the end of this report.

The publications focus on the primary objectives of the project: the underground storage of carbon dioxide (CO₂) or hydrogen (H₂). They address experimental investigations, observations, and modeling of physical phenomena associated with the injection, propagation, or leakage of CO₂ or H₂ within underground formations.

The research presented in these publications was carried out as part of the Ph.D. theses of AC, AB, and AF, along with the postdoctoral work of AK and AL (to complete).

Co-authorship of these publications was facilitated by staff exchanges and collaborative visits among scientists from partner institutions (specify which ones).

One of the key challenges was achieving original scientific results, suitable for high-level scientific publications, within such a limited timeframe. Additionally, the participation of young researchers with relatively limited experience, working within scientific groups that were not accustomed to collaborating or publishing together, posed a significant issue. However, this challenge was successfully addressed and overcome through the efforts and framework of the project.

In the following chapters, we present key insights and best practices for overcoming challenges associated with publishing scientific articles and successfully achieving ambitious publishing objectives within collaborative scientific projects.

3. HOW TO MANAGE PROPERLY TO PUBLISH JOINTLY?

3.1 Share the same scientific objective

The **main research question** has to be addressed before writing anything. All the teams must be aligned to this question. As for all publication, the **novelty** and the **contribution** to the community must be questioned. Once the scope is defined, a 1-page concept note could be written and refined by all the partners.

3.2 Build a clear collaborative framework

National or international research collaboration work best when all roles are explicit. That is why the different partners and teams must clarify different elements:

who **participates**? Each team should mention the involved laboratories, the involved researcher, PhD students, etc...

What is the **contribution** for each team?

If there are experimental issues, who does **experiments**? who does **modelling**? who does **analysis**?

What is the **due date** to finish the work?

A shared document, such as a Gant diagram or a simple Excel file, could be used. In the same idea, **collaborative writing tools** could be defined for using at this step:

Google Docs / Google drive: suited for brainstorming and first draft versions

Microsoft word online + OneDrive: same use than Google tools but better integrated with academic Word workflows

Overleaf (latex collaboration platform): the best for scientific publications, real-time LaTeX editing with version control

3.3 Choose the target journal and the authorship rules

Teams must decide the **target journal** by looking through different topics: open access vs subscription, expected impact levels. Some journals encourage joint publications. Most publicly funded programs encourage the publication of results in open access journals to ensure data accessibility.

The most sensitive part for a joint publication is the choice of **authorship rules**. Teams must decide who will be the first authors, how the different authors will be ordered, who will be the corresponding authors (not necessary the first author), etc... For helping the choice, the international standards like [ICMJE guidelines](#) could be used (dedicated to medical articles but could be applied for any scientific paper).

3.4 Organize efficiently the writing

Using a collaborative numerical framework such as discussed before, the collaborative writing should be **structured** to be efficient. An essential prerequisite is, of course, to base the article on international standards with the following structure: introduction – methods (with contributions from each team) – results – discussion – conclusion – author contribution statement – acknowledgements and fundings.

Once this statement made, the collaborative team must assign one **lead writer** per section, one **editor** for consistency and one person to manage literature **references**.

3.5 Adapt writing management according to international context

National of international collaborations sometimes mean working across different **time zones** and with different **cultural customs**. It is important to know how to adapt to each of them. The best practices are to organise clearly the timeline by:

- appoint a **project coordinator**
- organise monthly or weekly coordination **meetings**
- set **clear deadlines** and try to adhere to them to best of each team ability
- optionally: use a shared agenda

3.6 Plan the publication and review stages

Before starting the article submission process, care must be taken to check whether **internal approval** is needed for each partner. Also, each team needs to ensure that **acknowledgements for funding agencies** are present in the draft.

The collaborative team must decide who will handle the **journal submission** and the **reviewer responses (corresponding author)**. The replies to reviews should be coordinated and not written separately, exactly as for the draft preparation.

Final formatting and **proofreading** are also two crucial steps that must not be overlooked at the end of the process.

3.7 General workflow for joint scientific research publication

The following picture summarizes the **different steps** that must be completed before publishing a joint international scientific research paper:



4. KEY SUCCESS FACTORS & POINTS TO WATCH OUT FOR

The following table summarizes the different pro and con factor to succeed into joint publication process:

KEY SUCCESS FACTORS	COMMON PITFALLS TO AVOID
<ul style="list-style-type: none"> - clear division of different tasks - data sharing - strong communication adapted to each time zones and cultural difference - one person dedicated to publication process 	<ul style="list-style-type: none"> - parallel writing with no integration - different expectations for target journal - poor coordination of revisions

5. ETHIC TIPS FOR JOINT SCIENTIFIC PUBLICATIONS

The main key ethical principle is the honesty about who did what. Such as mentioned previously, the team must mention clearly who designed the study, who performed experiments and/or modelling, who analysed data and who wrote the different sections of the article.

If Artificial Intelligence (AI) with language editing, summarization or code has been used for helping, the team must disclose it when required. For instance, the statement could be: “ChatGPT was used to improve readability and grammar. All scientific content was verified by the authors”.

Publishers are now increasingly using anti-plagiarism tools such as screen for AI-generated or recycled text. It is therefore better to mention directly that AI has been used only as support, not as automatic writing. To go further and to stay ethical, it would be better to rewrite in the own scientific voice of each author.

A major ethical risk concerns the fact that some authors could upload sensitive information into public AI tools. The team must take care not to disclose unpublished results, confidential industrial data, personal data, proprietary code and reviewer reports. Thus, raw data is protected.

There is also an ethical issue concerning images, figures and graphics. AI has become a common tool for generating images. The main advice to address is not to use AI for:

- building experimental images
- generating fake microscopy or results figures

AI could be acceptable for schematic illustrations, but once again with disclosure if requested. Many journals have now very formal AI rules on this consideration.

6. LIST OF JOINT PUBLICATIONS DURING TWINN2SET PROJECT

Ghaedi, M., Gholami, R., Bellas, S., & Stamatakis, E. (2026). Coupled ThermalHydrodynamic-Chemical Modeling of Calcite Scaling in Geothermal Wells. *Geoenergy Science and Engineering*, 214415.

Ghaedi, M., Gholami, R., Bellas, S., & Stamatakis, E. (2025). Evaporation-induced salt precipitation and dry-out evolution during hydrogen storage in geological porous media. *International Journal of Hydrogen Energy*, 102, 1306-1314.

Ghaedi, M., Gholami, R., Bellas, S., & Stamatakis, E. (2025). Capillary Trapping in CO₂ Storage Sites: A Traffic Light System for Preliminary Leakage Risk Assessment. *Gas Science and Engineering*, 205807.

Ghaedi, M., Gholami, R., Bellas, S., & Stamatakis, E. (2025). Hydrogen-Brine-Calcite Geochemical Interactions During Underground Hydrogen Storage. *Greenhouse Gases: Science and Technology*, e2368.

Tallarou, C., Labropoulos, A., Stavropoulos, S., Pasadakis, N., Stamatakis, E., Bellas, S., Gholami, R. & Yentekakis, I. V. (2024). A Combined Experimental and Computational Study on the Effect of the Reactor Configuration and Operational Procedures on the Formation, Growth and Dissociation of Carbon Dioxide Hydrate. *Sustainability*, 16(20), 8854.

Trimi, P. M., Bellas, S., Vakalas, I., Gholami, R., Gaganis, V., Gontikaki, E., Stamataki, E. & Yentekakis, I. V. (2025). A Review of Caprock Integrity in Underground Hydrogen Storage Sites: Implication of Wettability, Interfacial Tension, and Diffusion. *Hydrogen*, 6(4), 91.