Women in Copernicus

Global Analysis of the survey

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Introduction

Why a project on Women in Copernicus?

Women are part of the Copernicus experience. They are not always visible but they are present in the production flow of the Copernicus / Earth Observation / Geoinformation (Copernicus/EO/GI) domains. The professions related to Copernicus/EO/GI domains are very varied and range from physicist to geographer, from computer scientist to environmentalist, from geomatician to oceanographer and to urban planner, to name a few. In spite of their valuable contributions, women still occupy few positions with a strong technical component in the Copernicus ecosystem.

The Women in Copernicus project

The "Women in Copernicus" projects wants to give a voice and a face to the women who work with Copernicus, be them experts in the analysis of satellite data or users of the Copernicus services in various fields of application. The project aims to identify opportunities and obstacles in the paths of these women, and also to inspire girls and women by bringing Women in Copernicus to the forefront of Copernicus.

This project is funded by **CoRdiNet**, supported by **NEREUS** (Network of European Regions Using Space Technologies), **EURISY** (European association of space agencies), **EARSC** (European Association of Remote Sensing Companies) and **BELSPO** (Belgian Federal Science Policy Office), and is led by **BreTel** (Brittany Remote Sensing Group, France), **SPW** (Public Service of Wallonia, Belgium) and **UJI** (University Jaume I, Spain). The **University of Strasbourg** (France) and **University of Salzburg** (Austria) are partners. Links to the websites of the partners and funders are in annex 1).

The Women in Copernicus survey

This report presents the **results of the Women in Copernicus survey** (annex 2). The survey ran between July and September 2020 and aimed at acquiring information on the women working in the Copernicus sector. In particular, the survey included questions about **individual background** and **career path**, **facilitators** in the professional development and **barriers** faced because of gender.

Numerous studies have been carried out on the topic of Women in Science, Technology, Engineering and Mathematics (STEM), underlining the need to attract more women into these disciplines. Nevertheless, little information exists on women working in a transversal and relatively new sector like the Earth observation domain, and in particular in the Copernicus sector.

This report wants to shed some light into the subject of gender bias in the Copernicus ecosystem from the point of view of women active in the sector. Far from being representative of the whole Copernicus ecosystem, the replies received from 460 women who participated in **the survey provide a first insight into a subject that deserves further consideration in the future**.

We wish to **thank the women who took the time to reply to the survey** and who contributed with their experience to this collective effort. Hopefully, this project will represent a first step towards a change of perspective and will pave the way to future collective activities aimed at reducing and eventually eliminating a gender bias in the Copernicus world.

To know more about Women in Copernicus, please visit the project website at: <u>https://womenincopernicus.eu/</u>

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1. The Women in Copernicus survey

1.1. 460 participants: Women are engaged in Copernicus

With **460 replies**, this survey can be considered a huge **success**, especially considering the fact that it was conducted during one and a half month in the summertime of the COVID-19 pandemic crisis. As the women implementing this project also replied to the survey, we decided to include ourselves in the results and to present the results from a "we" perspective. This choice is also motivated by the feeling that most of the responses, quotations and interviews given by the respondents also express our own opinion, resulting in a feeling of "sisterhood".

The high answer rate we received confirms that **women are well present in the value chain of the Copernicus programme**. We want to be visible and we all took advantage of this project to express our opinions about our jobs in the Copernicus sector. This report is structured as the questionnaire (see annex 2), trying to get a **better understanding of the profile of the women in Copernicus who participated to the survey**; an overview of their job positions; **how gender bias is perceived in education, work place and society**; but also showing the **facilitators** and the **proposed solutions and tools to improve gender-balance within the Copernicus sector**. Women in Copernicus want to showcase their achievements, but also to express their ideas on how to positively transform the Copernicus world.

1.2. Who are the Women in Copernicus?

Ten **men** replied to this survey but these answers have been removed from the analysis as they were not the target of the initial study. Their **participation has been an excellent surprise** and represented a positive message about the

interest of gender studies of both men and women. A second study with participation of all genders would be relevant as a perspective outside of the scope of this project.

Where do we work?

Most responding women work in **Europe**, but we got replies from women also active in **other continents** (Latin America, Asia, Africa and North America).

Continent	Number of respondent
Europe	443
Latin America	10
Asia	4
Africa	3
North America	2

[Table 1] Continent where the respondents mainly work (Q2: What is your predominant work location by country?)

European country	Number of respondent
France	78
Germany	72
Belgium	55
Spain	49
Italy	48
United Kingdom	44

[Table 2] European country where the respondents mainly work (Q2: What is your predominant work location by country?) [Figure 1] Countries where the respondents mainly work (Q2: What is your predominant work location by country?)



Women in Copernicus Survey 2020 Responses per country; Gray indicates no responses.

Data source: <https://womenincopernicus.eu/>

How old and experienced are we?

Most women surveyed are in their thirties, 20% being younger (under 30 years old) and 40% older (over 40 years old). We lacked replies from women younger than 25. This is probably due to the fact that, in our communications, we addressed women who already work, while many European women under 25 are still students. Also, it is to be noted that students were on holiday during the survey rollout.

The Women working in Copernicus have a long work experience. More than half (54%) of the participants has more than 10 years of professional experience, while around a quarter of the panel (22%) has less than 5 years of experience.





What is our educational background?

Most participants have a high educational level (47% Master and 48% PhD). Of course, this result is highly correlated with the age of participants, as the most educated younger participants have instead a bachelor degree. Our education is mainly in the fields of Science, Technology, Engineering, and Mathematics (STEM): Natural sciences, mathematics and statistics; Engineering, manufacturing and construction; Information and Communication Technologies. "Other" educational fields are diversified, including Business, administration and law; Social sciences, journalism and information; Agriculture, forestry, fisheries and veterinary. The results show that there is a diversity of skills and employment in Copernicus. While STEM education is the most frequent, other profiles can play an important role in the Copernicus sector, underpinned by the fact that responding women often have multi-disciplinary skills (30%).

 Any STEM education is subject to Copernicus, shore as there is some computers is one computers is one computers in the ducation is everything from engineering, physics, cartography, and GIS to policy, law, accommics, communications, marketina. business finance and more

 Water 's quotes from survey will illustrate the report, they will be in the bubbles as below

 [Figure 4] Q4: What is your highest educational degree?





What is our work environment?

Nearly half of the surveyed participants work in the **academic sector** (43%), whereas a quarter in the **private sector** (26%). Even if the questionnaire was translated in 6 languages, we did not really reach women working in local and regional authorities or very few (11%).

65% of respondents work for big institutions (with more than 50 employees), nearly half (46%) for even bigger institution's (with more than 250 employees).





At witch level of the Copernicus work do we work?

The big majority of the women answering the survey are **involved in various levels of the value-adding chain** (94%) **from upstream to downstream** and in the **use of Copernicus data and products**. The most mentioned level is the "Use of Copernicus data" (42%). Many (75%) are involved both in the "Copernicus Downstream services development" or/and in the "Use of Copernicus data and services for different thematic applications". These results show that **most of Women in Copernicus work in the operational and downstream services, close to the final users**. As stated by Dinka Dinkova (DG DEFIS) during the EOcafe organised with EARSC on the WIC project in September 2020 (see annex 3): **"This is a strength"**, as women can play a crucial role in increasing the use and usability of Copernicus data and services.



Indeed, when asked about the accomplishment we are most proud of , **many of us mentioned the notion of user assistance, from training to support for operational services**: more than half (52%) of the examples of achievements mentioned in the survey are related to services or support dedicated to users. I am proud to enable the application of Copernicus technology for environmental, ocean and coastal engineering applications so that useful products are provided to different users, leading to scientific improvements that help society

1.3. How do we evaluate our jobs?

We asked to evaluate the jobs according to different assessments (expertise, technical skills, hierarchy and satisfaction). The majority of us are **proud of our job in Copernicus** with a global level of satisfaction of 3,8/5. Moreover, **we want to talk about it**: more than half of the women surveyed wanted to express themselves on their main accomplishment in the Copernicus/EO/Gl domain.

We believe we have high technical skills and expertise (respectively 3,4 and 3,2/5). However, even with high education, high expertise and high technical level, our position in the hierarchy is perceived as being low, with an average level of 2,8/5. Furthermore, this low level has an impact on our job satisfaction.

[Figure 9] Q17: How would you describe your job satisfaction? / Q16: How would you evaluate your technical skill level in data processing in your job / Q11: How would you evaluate your level of expertise using Copernicus data/services / Q15: How would you evaluate your hierarchical position in your organisation Average score from 1 (very low) to 5 (very high)





What could explain this perceived low level in the hierarchy? This survey does not give the answer. A comparison between men and women is necessary. However, it confirms a general fact: **women are occupying less leading positions**. The slight difference between expertise and technical skills is also interesting. **Are women less likely to claim to be experts?** These are open questions that could be seen as future prospectives.

Levels of job satisfaction and of technical skills are quite stable regardless of the age. Logically, the level of technical skills and the hierarchical level increase with age. For the **hierarchy**, there seems to be a **gap after 40 years old**. We can assume that motherhood, often occurring in the thirties, can slow down the

hierarchical progression. To confirm this hypothesis, a comparison with men would be necessary.

1.4. What are we proud of?

In this survey, women express themselves on their best accomplishment with an open question. More than half provided an answer (250/462). The high reply rate of this open question illustrates **a willingness to share individual Copernicus success stories**.

For analysis, we summarised the qualitative answers in one or several keywords and counted their occurrence (see word cloud below).



The most frequent words used in the answers are "service", "user", "data", "mapping", "promotion", "research". This confirms the position of the women in the Copernicus value chain. Women are mostly involved in the application component of Copernicus and in services dedicated to users. More than half of the reported examples of achievements are related to services or support dedicated to users (52%). Copernicus women want to feel useful.

Women in Copernicus are proud of the results they obtained by data-processing (maps, detection algorithm, etc.), and more than 25% of them are proud of the services they are providing to users (be they customers, scientists, institutional users, etc.). However, **only some claim to be experts or to be proud of their high level of technical skills**.

The **democratisation of data** allowed by Copernicus is also making us proud of being part of this programme (17%): about a sixth of the women are proud of processing free data and developing open-source results, tools and services.

The decision-making and political components of the Copernicus programme are also a source of pride for a tenth of us: we are proud to negotiate contracts, to establish partnerships, to lead teams, to head successful programmes (10% of responses).



2. What are the barriers in our path and career?

We were asked to rate the barriers found on our path. Average score of each proposed barrier is in the table below. The three main barriers are the fact that women are **a minority**, the **gender bias** we face in our career and the **lack of self-confidence** we feel. Most of us do not feel pressure from society. Influence from our family is the lowest factor, even when talking about family from the employer's perspective, and 78% of us was not influenced at all from our family.

Kind of barrier	Average score (from 1 to 5)
During my studies I have noticed imbalances in the number of men and women	3,58
In my career I have noticed gender bias	3,47
At certain points in my career I have lacked confidence and missed opportunities	3,34
Motherhood had (or would have) a negative impact on my career	3,19
In my career I've seen differences in salary	3,06
My professional choices influenced my private life in a negative way (mobility obligation, workload, business travels)	2,75
My private life choices influenced my professional life in a negative way (e.g. part-time working, children obligations, couple decision such as following your partner)	2,43
During my recruitment, I experienced some differences of treatment	2,35
The proportion or the hierarchical position of women and men in my team/organisation has a negative impact on my motivation	2,12
My family life has been perceived as an issue by my employer	1,98
When I was young, I felt pressure from society to choose other study domains /career options	1,94
When I was young, my family influenced me to choose another domain /career	1,75
ble 31 O19>O30: Please rate (from 1 "not at all" to 5 "absolutely") the	obstacles you found

[Table 3] Q19>Q30: Please rate (from 1 "not at all" to 5 "absolutely") the obstacles you found in your career because of your gender, average score from 1 to 5



[Figure 11] Q19>Q30: Please rate (from 1 "not at all" to 5 "absolutely") the obstacles you found in your career because of your gender

2.1. Being a minority and be subject to gender bias are the main barriers identified for our professional fulfillment

The results confirm the **existence of a gender bias in the Copernicus sector**, which is perceived by women both **during our studies and careers**. **Gender imbalance in the classroom** (with an average score of 3,6/5), gender bias perceived in the workplace (3,5/5) and the **lack of self-confidence** (3,3/5) are the three highest barriers identified. . However, 66% of respondents are **not demotivated by the imbalanced gender proportion in the hierarchy**.

Focus on the imbalances during studies and career

Women already perceive **inequalities during their studies**, being a minority compared to men in their classes: in the year they graduated, around 50% of us were in a class where less than 40% of the students were girls; for almost 1/4 (22%), it was a class with less than 20% of girls. This imbalance decreases for younger women: 72% of women over 50 years old graduated in a class with less than 40% of women; this percentages decreases to 43% among women under 30 years old. This seems to reveal that **things are slowly changing**, even if inequalities are still present in studies.

This imbalance is **also perceived during our careers**. **Women are usually a minority** in their institution. Almost half (47%) of respondents are working in organisations with less than 40% of female employees. This imbalance is even greater among women working in the Copernicus/EO/GI domain. These figures increase to 56% including a 31% of respondents working with less than 20% of other women.

The **imbalance during the studies** is perceived as a **barrier for 58% of respondents**. The score attributed to this barrier is relatively stable regardless of the age of the respondent.







[Figure 13] Q6: In the year you graduated, what was the percentage of women among

What I have seen in the Middle East and in Europe is that there are women studying in STEM, but they somehow disappear in minor roles afterwards



A gender bias exists in the Copernicus ecosystem

Despite the fact that 42% of respondents claim that their organisations have policies for ensuring a professional balance between men and women, 55% of respondents noticed **a gender bias during their professional career**, especially visible in the low number of women in high level management positions. Many mentioned attending meetings and events where women were in harsh minority, and the formula **« boys club** » came up often in the answers given to our survey.



This gender bias also results in **imbalances in the form of employment**, **in the salaries** of female as compared to male employees (reported by 43% of respondents) and in the perception that there are **less opportunities for women to achieve a high hierarchical position**.

Another barrier is the lack of opportunities, male dominance is discouraging

> The biggest problem is in my view the too small number of women in high level management positions



2.2. We struggle to find a good balance between our private lives and professional careers

A third (32%) of respondents claim that their **professional choices influenced their private life in a negative way** (because of mobility obligations, workload, business travels, etc.), while 28% report that their private life choices had a negative impact on their careers (e.g. part-time working, children obligations, couples' decisions such as following their partner). **Motherhood is still perceived as a career showstopper for many** (48% claim that motherhood had, or would have, a negative impact on their career).

Several respondents highlighted the **difficulties** faced to get back into their professional career path **after a maternity leave** and blamed the **lack of childcare**, flexible working hours and teleworking policies (which became visible during the recent COVID-19 emergency).

While working long hours is still perceived as a positive performance indicator, as compared to men, women still feel more pressure to take care of their homes and children. This **social pressure**, coupled with lower salaries and insufficient childcare policies in the workplace, makes it **harder for women to advance in their careers at the same phase of men**.



Maternity leave and motherhood introduces a gap in a career (will I have the same position or projects when returning?). Working part-time affects credibility, appreciation and position in the company

In the past, when I was working in the private sector, the maternity was perceived as a showstopper, and the my job opportunities were evaluated by my management according to this perceived risk, starting from the day I announced my wedding Often STEM jobs badly combine with motherhood. At some point, I was strongly suggested to move to teaching as it was the only job suitable for a mother

Science is led my men. Managers still think you can get someone to look after your children because you are well paid, so motherhood is not really valued once you give birth. Maybe because most of managers are male

2.3. Gender stereotypes are still well anchored in society and have been often internalised by women

55% of respondents feel that **gender stereotypes still exist**. 58% noticed a gender imbalances already during their studies and many feel like they are not taken seriously in the Copernicus ecosystem. **Women claim to have to constantly prove their capabilities** in the workplace. In addition, several women mention suffering from a lack of self-confidence or even « impostor syndrome¹ ». Many of respondents (63%) report a **lack of self-confidence as a barrier in general for girls** and 50% reports having **missed opportunities because of low self-confidence**. Women are concerned about their dress code in the office and many complain that they are often fixed in secretarial roles.

¹ Impostor syndrome is a psychological pattern in which an individual doubts their skills, talents or accomplishments and has a persistent internalized fear of being exposed as a "fraud" (Langford, Joe; Clance, Pauline Rose, 1993)



This feeling of « not being enough » is internalised by women, who **doubt of their own capabilities** and even perceive other women as competitors for the few well qualified jobs in the sector that can be occupied by women.

> Women must work twice harder to convince than men. When you enter a room and attendance is mainly old men, they don't really pay attention at what you are saying

> > I lack of self-confidence in my job because I am a girl. When having questions, I'm often afraid of being considered as stupid

2.4. It is important for us to invert the patriarchy paradigm by acquiring more self-confidence and by creating strong links among each other

The **lack of role models in the Copernicus ecosystem** is perceived by 67% of respondents, but 45% of us were inspired **by other women in our professional path.** This highlights the need to give more visibility to the women who contribute to the development and use of Copernicus data and services. Initiatives like <u>Women in</u> <u>Copernicus</u>² are needed to showcase such role models and to create links among women working in the sector.

2.5. Comparison of perceived barriers by age

² https://womenincopernicus.eu/

We made an analysis of the perceived barriers by age. The age of respondents has an influence on some barriers. Perceptions of career bias and salary inequalities are lower scored by younger women. For the imbalances in recruitment and the influence of the low proportion of women in hierarchy, we observe a gap under 50 years old.



It can reveal than, **even if inequalities still exist, things are slowly changing**. However, scores are relatively stables regardless of the age for imbalances in studies, lack of self-confidence and negative perception of influence of motherhood.

2.6. We identify other barriers

We asked about the other barriers women finding their path. Some of us have gone through **very difficult experiences in our professional lives because of our gender**: some women told us about displaced sexist remarks, inappropriate seduction attempts, which may include professional, or sexual harassment, discouragement by male colleagues to leave their positions, non-renewed contracts due to pregnancy, etc.





3. What limits young women in choosing STEM careers?

We asked women to rate the barriers for girls in choosing a STEM education.

Reasons	Average score (from 1 to 5)
Stereotypes in society	3,89
Missing women role-models in these domains	3,85
Culture, literature, marketing, television	3,80
Lack of confidence	3,78
Differences in education	3,16
Wording (such as the names of the jobs or ways to describe technologies)	2,85

[Table 4] Q46>Q41: In the context of Copernicus and from your perspective, what are the reasons that better explain the low number of women in STEM/Copernicus? Average score from 1 to 5

Stereotypes in society (68%), **missing role-models** (67%), **culture/ marketing/ television** (66%) and **lack of confidence** (63%) are the main factors perceived as influencing the **low number of women in STEM** disciplines. Lack of confidence is scoring high also in this choice. Wording and education seem to have a bit lower influence. Maybe because most of the times this aspect is so subtle that people don't even realise it exists. Nevertheless, there are a lot of messages that are addressed differently to men and women in the languages we use.

4. What are the facilitators in our path?

We asked women to rate the facilitators and support they found in their careers. **Family and friends' support** and **working in the Copernicus/EO/GI domain** are the main existing **facilitators**. Women find help and support inside circles of trust, where they feel comfortable, like in a network of women or in their circle of colleagues at work. **Gender policies seem to be underdeveloped** or they might be not particularly well communicated in the sector. Despite regretting this lack of policies, women find support in their close teams, colleagues and heads. The nature of the work developed in Copernicus/EO/GI and the technologies used are broadly pinpointed as facilitators.

Kind of facilitator	Average score (from 1 to 5)
Today I feel supported by my family in my career	4,27
Working in the Copernicus/EO/GI domain brings a lot of satisfaction	4,12
When I was young , my family supported me in my training/professional choices	4,11
My organisation offers me a work environment that allows me to reconcile professional and personal life (e.g. schedules, teleworking and holidays)	3,64
My private life helps me in my professional development	3,57
My professional development influences positively my private life	3,40
During my studies I was encouraged to have an ambitious professional project	3,27
At certain points in my career I have been motivated by women role models	3,20
My organisation has policies in place for ensuring a professional balance between men and women (recruitment, professional scale, etc.)	3,05
When I was young, I felt a positive influence from society to choose this domain (Copernicus/EO/GI)	2,57

[Table 5] Please rate (from 1 "not at all" to 5 "absolutely") the support you found in your career, average score from 1 to 5



[Figure 15] Q34>Q43: Please rate (from 1 "not at all" to 5 "absolutely") the support you found in your career **Facilitators**

4.1. Family and private life: families as main support

Family is the highest facilitator, both in our choices as students (75% agree or strongly agree with "When I was young, my family supported me in my training/professional choices") and the actual career (79% agree or strongly agree on "Today I feel supported by my family in my career"). It could be the case that those women with a strong support from their families happened to be the ones who choose EO/GI as career and those with few or less support decided not to enrol in an EO/GI (STEM) career. However, the agreement decreases when it has to do with the influence of private life on professional development, or vice versa 55% and 51% respectively.

4.2. Society

Respondents did not feel a particular encouragement from society when choosing a career in the EO/GI domain. Indeed, 51% strongly disagree or disagree with the sentence "When I was young, I felt a positive influence from society to choose this domain (Copernicus/EO/GI)".

4.3. Studies and mentorship

The two sentences "During my studies I was encouraged to have an ambitious professional project" (30% disagree) and "At certain points in my career I have been motivated by women role models" (31% disagree) are the ones with lower agreement amongst participants. In the open questions, we could appreciate that when role-models existed, no more than one had a fundamental influence (particularly professors, independently of their gender). However, they are more considered as mentors, than models to follow.

Many of us are grateful for the **help** we have **found in networking**, communities of practice, etc. with other women, even outside the EO sector. Again, respondents do not talk about any specific model or woman as an example, but about the **power of networks (sisterhood)** in which women feel comfortable to share their experiences.



4.4. Work environment: some pending issues

Gender policies are still insufficient or poorly communicated; since 35% of respondents disagreed with the statement "My organisation has policies in place for ensuring a professional balance between men and women". However, 60% agrees with the sentence "My organisation offers me a work environment that allows me to reconcile professional and personal life", which could be interpreted as policies in place. Through the analysis of the open questions, we could appreciate the fact that women perceive a supportive job atmosphere within their team of with their superiors. Hence, **colleagues seem to be motivational and fundamental for a good job environment**.

Copernicus offers so many possibilities and we are only beginning to scratch the surface of them. As long as we have the data, we have jobs

> There are a lot of good people around me. I hope I can give the same support to young people in my organization

Seeing other women's commitment to the Copernicus programme is encouraging Copernicus opened up great opportunities for me as an independent consultant because with satellite data you get to work on diverse projects all over the world while you are in the comfort of your home, taking care of two kids. I can read an article while folding the laundry and preparing dinner. I have had camera-free meetings while I was nursing my child, so I could keep nursing my baby up to one year, while I had to stop early with my first child because I was working at an institution. I could run a code in the evening and spend time with my family. Then I would work on the results calmly at night. I am thankful to be in the field at this age and time.

5. How can Copernicus be a support, provide opportunities, and be more gender-balanced?

5.1. How Copernicus (indirectly?) supports us

Working in the Copernicus/EO/GI domain is what **brings a lot of satisfaction to women**, 77% of the women surveyed agreed on that. The nature of the work developed inside the EO domain, most of the times based on the use of Information and Communication Technologies (i.e. access data on the cloud), allows women to find a **balance between their work and private life**.

Copernicus/EO/GI gathers a huge range of professionals, occupational profiles, and a variety of experts with different backgrounds and countries of origin. The dynamism of the domain and the **international possibilities for networking, collaboration and contribution to a diversity of projects** are mentioned as important factors for **satisfaction**.

Women propose tools and solutions for changing the gender bias and improving their work environment in the Copernicus sector: **identifying and giving visibility to role models but also to all existing women** as part of the system; implementing policies **aimed at achieving gender balance in the workplace** - especially important for higher level positions; **creating opportunities for empathy**, **listening, coaching, mentoring** (by men and women) and networking in order to **increase women self-confidence**.

5.2. Things are changing and we are not alone

In the process of setting up the project and building up a network of Women working in Copernicus, we came across several other groups dealing with gender in the spatial/geospatial sector (Women in Geospatial, GEOchicas, Women in Aerospace, UNOOSA's Space for Women, Sisters of SAR, Ladies of Landsat, EUROGI Focus Group Women in GI, etc.) We think it would be possible to start conversations which gather as many similar initiatives as possible, to join forces and to discuss about lessons learned and common objectives. Even though this objective is outside the scope of this small project, we feel like all the energy that came out of this survey shouldn't be lost. The WIC project would like to share all the information received by these 460 women with as many as possible. **The European Union is working to improve and better understand the gender bias** since a few years. Actions and reflections are tackling stereotypes, gender quota, policies, etc. The current presence of a woman as president of the European Commission is an important and positive message.

Q44: Do you think of any other facilitator? Please mention it / Q45: Do you have any testimonial to share with women in Copernicus that helped you in your current job or in your career?



6. The Women in Copernicus project visibility

This project aims to reach out to as many women working in Copernicus as possible, but we also want to **send our messages out to the general public**. With this objective in mind, one of the outcomes of the project is the https://womenincopernicus.eu web page, which together with the social media accounts helped us **spread the word** and get the numerous responses we received.

6.1. Web page analytics

These are some of the analytics extracted from the traffic on our web page. They show that **not only European cybernauts were interested in the project**, but that also many other visitors checked it. In total, more than **1300 unique users** have visited it until 20th October, including 69 from United States, 16 from Canada, 14 from India and 10 from Brazil.



Over the first two weeks after launching it we had near 50 unique visitors per day.



The picks we observe were the days we shared the link in our twitter account, 23th July with 119 visitors and 28th July with 124 visitors, after that we observe a decrease of the visits, which will increase again once the results get published and announced in social media.

6.2. Twitter analytics

These are statistics from the twitter account.

	Tweet impressions	Profile visits	Followers
June '20	972	64	9
July '20	33200	1243	352
August '20	34900	473	458
September '20	44300	602	524
October '20	12200	280	577

[Table 6] Twitter account analytics

Social media proved to be very important to **share our news** and **get visibility on the project**, that's why we will continue growing current numbers by keeping alive the twitter account, the web page and by setting up a mailing list.

Women in Copernicus – Analysis of the survey – October 2020 - Page 24

Conclusions

This project could be the **initiator of a Copernicus women network**. Indeed, creating connections between women will support them in their work in the sector. We are proud of our job in Copernicus. This large motivation can be seen as an energy that could be mobilized by the programme. Taking care of the motivations of women and of their working conditions is **an investment for a future Copernicus more gender-balanced and more powerful**.

A majority of us works at the end of the value chain, **close to the user** with a high interest in support, application with the deep aim of being useful. This unique position in the value chain can be taken as strength for the program. Focusing on Women with high involvement and empathy will **support the downstream objective**. Giving to women a more conformable position (highest hierarchy levels perhaps) and **more visibility** in Copernicus program (enlighting their achievements and particular expertise) will increase the power of this extraordinary instrument.

We all experienced barriers in education and career and this survey puts some light and figures on the most important ones. This project offers clues and criteria to better understand where actions can be carried out. **This is the right moment to adopt a strong strategy inside the Copernicus sector to identify, trace and solve these barriers**. This strategy would foster equality and attract more qualified female young students towards STEM disciplines.

The number of testimonies received by WIC cannot be analysed in detail in this report, but this is material that could be further used to promote the role of women in the sector.

For the respondents to the survey, **family** is the main **facilitator** in their education and career, but **team work** and **empathy** in the working environment are the real key factors to achieve their well-being. **Gender-balanced policies** should be strengthened to increase this well-being. This survey provides some **messages to girls**. We hope that the next generation will be more supported and will suffer less from gender bias during the studies or careers in STEM.

Success of Copernicus is built on many years hard work of women and men and this should continue in partnership

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Glossary

- EO: Earth Observation
- EARSC: European Association of Remote Sensing Companies
- EURISY: European association of space agencies
- **BELSPO:** Belgian Federal Science Policy Office
- BreTel: Bretagne Télédétection (Brittany Remote Sensing Group, France)
- DG DEFIS: Directorate-General for Defence Industry and Space
- NEREUS: Network of European Regions Using Space Technologies
- GI: Geoinformation
- SAR: Synthetic Aperture Radar
- SPW: Service Public de Wallonie (Public Service of Wallonia, Belgium)
- STEM: Science, Technology, Engineering and Mathematics
- UJI: Universtity Jaume I, Spain
- WiC: Women in Copernicus

Annexes

Annex 1: Partners and funders' website

Annex 2: Questionnaire

Annex 2: Implementation, dissemination and promotion of the project

Annex 3: Visual identity

Annex 1 - Partners and funders' website

http://www.cordinet.net/ http://www.nereus-regions.eu/ http://www.eurisy.org/ http://www.earsc.org/ http://www.belspo.be/ http://www.bretel.eu/ https://spw.wallonie.be/ https://www.uji.es/ http://en.unistra.fr/ https://www.uni-salzburg.at/

Annex 2 – Questionnaire

Women in Copernicus

Women are part of the Copernicus experience. They are not always visible but they are present in the production flow of the Copernicus / Earth Observation / GeoInformation (Copernicus /EO/GI) domains. This project aims to give them a voice and a face.

This survey addresses European Women working or having worked with Copernicus data or in the Copernicus domain of activities. The survey includes 6 sections (demographics, background and career, barriers, facilitators, education choices and final). It should only take 10 minutes to answer. Thank you for your time and interest in this initiative. female gender is independent of biological sex

This project is funded by CoRdiNet, supported by NEREUS (Network of European Regions Using Space Technologies), EURISY (European association of space agencies), EARSC (European Association of Remote Sensing Companies) and **BELSPO** (Belgian Federal Science Policy Office).

It is led by **BreTel** (Brittany Remote Sensing Group, France), SPW (Public Service of Wallonia, Belgium) and UII (University Jaume I, Spain). The (France) and PLUS (Paris Lodron University of Salzburg, Austria) are supporting partners.

www.womenincopernicus.eu

Section 1: Demographics

- How do you identify yourself with regard to gender? 1. a. Masculine
 - b. Feminine
 - c. Gender-fluid

2. What is your predominant work location by country? (please select one)

Albania Greece Andorra Hungary Armenia Iceland Austria Ireland Azerbaijan Italy Belarus Kazakhstan Belgium Kosovo Bosnia and Netherlands Herzegovina Latvia Bulgaria Liechtenstein Croatia Lithuania Cyprus Luxembourg Czechia Malta Denmark Moldova Estonia Monaco Finland Montenegro France North Georgia Macedonia Germany Norway

Poland Portugal Romania Russia San Marino Serbia Slovakia Slovenia Spain Sweden Switzerland Turkey Ukraine Vatican City Other: ... [open field]

- 3. How old are you?
 - a. <25
 - b. 25 30
 - c. 31 40
 - d. 41 50
 - e. > 50

Section 2: Background and career

4. What is your highest educational degree?

- a. Secondary education or equivalent (e.g., International Baccalaureate, A-levels, high school)
- b. Bachelor's or equivalent level
- c. Master's or equivalent level
- d. Doctoral or equivalent level (e.g., PhD)
- e. Other: ... [open field]

5. What domain(s) did you graduate in? (several answers are possible)

- a. Generic programmes and qualifications
- b. Education
- c. Arts and humanities
- d. Social sciences, journalism and information
- e. Business, administration and law
- f. Natural sciences, mathematics and statistics
- g. Information and Communication Technologies
- h. Engineering, manufacturing and construction
- Agriculture, forestry, fisheries and veterinary i.
 - Health and welfare
- k. Services

i.

Ι. Please specify:... [open field]

6. In the year you graduated, what was the percentage of women among your classmates?

- a. < 20 %
- b. 20 40 %
- c. 40 60 %
- d. 60 80%
- e. > 80 %

7. In which level(s) of the value chain are you using **Copernicus?** (several answers are possible)

- a. Copernicus upstream (building space technology such as satellites or their components)
- b. Copernicus midstream services development (Copernicus monitoring services: atmosphere, marine, land, climate change, security, emergency)

United Kingdom

- c. Copernicus downstream services development (development of specific applications for final users)
- d. Use of Copernicus data and services for different thematic applications (urban planning, environmental protection, agriculture, health, etc.)
- e. Other, please specify: ... [open field]

8. In which type of organisation are you currently working?

- a. Academic / University / Research Institution
- b. Private company
- c. Governmental authority, local and regional authority (LRA)
- d. Association / Non-governmental organisation (NGO) / International organisation
- e. Other: ... [open field]

9. How many years of work experience do you have?

- a. <5
- b. 5-10
- c. 11 20
- d. >20
- **10.** How long have you been working with Copernicus (formerly GMES) data/services?
 - a. No experience
 - b. < 5
 - c. 5 10
 - d. 11 20
 - e. > 20
- 11. How would you evaluate your level of expertise using Copernicus data/services (from "novice" 1 star to "expert" 5 stars) ?
- 12. How many people are working in your organisation?
 - a. <10
 - b. 10 49
 - c. 50 249
 - d. > 250

- **13.** What is the percentage of women in the total number of employees working in your organisation?
 - a. < 20 %
 - b. 20 40 %
 - c. 40 60 %
 - d. 60 80%
 - e. > 80 %
 - f. I don't know
- 14. Among the people working in your organisation in the Copernicus / Earth Observation / Geoinformation (Copernicus/EO/GI) domains, what percentage is female?
 - a. < 20 %
 - b. 20 40 %
 - c. 40 60 %
 - d. 60 80%
 - e. > 80 %
- 15. How would you evaluate your hierarchical position in your organisation (from 1 star "very low level of hierarchy" to 5 stars "very high level of hierarchy")
- 16. How would you evaluate your technical skill level in data processing in your job (from 1 star "no technical skill" to 5 stars "higher technical skill level")
- 17. How would you describe your job satisfaction? (from 1 star "low" to 5 stars "very high")
- What is the accomplishment you are the most proud of in the Copernicus/EO/GI domain? [optional] [open field]

Section 3: Barriers

Please rate (from 1 "not at all" to 5 "absolutely") the obstacles you found in your career because of your gender

- **19.** When I was young, my family influenced me to choose another domain /career.
- **20.** When I was young, I felt pressure from society to choose other study domains /career options.
- **21.** During my studies I have noticed imbalances in the number of men and women.
- **22.** At certain points in my career I have lacked confidence and missed opportunities.
- **23.** During my recruitment, I experienced some differences of treatment.
- **24.** In my career I have noticed gender bias.
- **25.** In my career I've seen differences in salary.
- **26.** Motherhood had (or would have) a negative impact on my career.
- **27.** My family life has been perceived as an issue by my employer.
- **28.** My professional choices influenced my private life in a negative way (mobility obligation, workload, business travels).
- **29.** My private life choices influenced my professional life in a negative way (e.g. part-time working, children obligations, couple decision such as following your partner).
- **30.** The proportion or the hierarchical position of women and men in my team/organisation has a negative impact on my motivation.
- **31.** Do you think of any other barriers? Please mention it: [optional, open field]
- **32.** Do you have any testimonial to share with women in Copernicus that has discouraged you in your professional experience? [optional, open field]

Section 4 : Facilitators

Please rate (from 1 "not at all" to 5 "absolutely") the support you found in your career

- **33.** When I was young, my family supported me in my training/professional choices.
- When I was young, I felt a positive influence from society to choose this domain (Copernicus/EO/GI).
- **35.** During my studies I was encouraged to have an ambitious professional project.
- **36.** At certain points in my career I have been motivated by women role models.
- **37.** My organisation offers me a work environment that allows me to reconcile professional and personal life (e.g. schedules, teleworking, holidays).
- **38.** My organisation has policies in place for ensuring a professional balance between men and women (recruitment, professional scale, etc.).
- **39.** Today I feel supported by my family in my career.
- **40.** My private life helps me in my professional development.
- **41.** My professional development influences positively my private life.
- **42.** Working in the Copernicus/EO/GI domain brings a lot of satisfaction.

43. Do you think of any other facilitators? Please mention it: [optional] [open field]

44. Do you have any testimonial to share with women in Copernicus of support that helped you in your current job or in your career? [optional, open field]

Section 5 : Fewer women opt for STEM* education and careers

In the context of Copernicus and from your perspective, what are the reasons that better explain the low number of women in STEM/Copernicus?

*Science, Technology, Engineering, and Mathematics

- **45.** Stereotypes in society
- Differences in education
- **47.** Missing women role-models in these domains
- **48.** Wording (such as the names of the jobs or ways to describe technologies)
- **49.** Culture, literature, marketing, television
- **50.** Lack of confidence
- **51.** Do you think about another reason that is not in the previous list? Please mention it: [optional] [open field]

Section 6: Thanks

Thanks for contributing to this project.

In a next phase we will analyse in more detail women experiences in the Copernicus domain by conducting short interviews. These interviews will help us to better understand the broader spectrum of Copernicus women and find success stories to show inform the community, girls and other women that this domain is attractive.

52. Do you want to be informed by mail about the follow up of this survey

a. Yes

b. No

53. To contribute to the second part of the study (short interviews) a. Yes

b. No

54. Mail

(if answer 52.a "Yes" or 53.a "Yes")

If you decide to be informed about the follow up of this survey and about our project in general, your personal data will be processed in compliance with the General Data Protection Regulation (GDPR).

Annex 3 - Implementation, dissemination and promotion of the project

PROJECT IMPLEMENTATION

Mid-June to mid-July

- Launch of the project (June 12)
- Adaptation validation of the schedule
- Online shared space for the project's partners
- Collective development of the questionnaire and translation in 7 languages [annex 2]
- Collective development of the website content and translation in 7 languages
- Establishment of communication tools and strategy (twitter account, mailing lists, networks, targeted contacts)
- Development of the visual identity [annex 4]

Mid to late July

- Creation of the <u>@WomenCopernicus</u> twitter account (576 followers October, 28)
- Creation of the website <u>womenincopernicus.eu</u> for the presentation of the project and the dissemination of the questionnaire, translated in 7 languages
- Dissemination of the Women in Copernicus Project on twitter relayed by the 7 regional / national / European partners including EARSC and EURISY (July 23)
- Dissemination of the questionnaire in 7 languages on twitter and linkedin
- Sending of the questionnaire to mailing lists (about 5000 contacts received the information via a mail list but there may be duplicates) and targeted contacts previously defined by the partners (about 150 targeted contacts received the information directly by mail) (from July 27 until early September)

August

- Collective development of an online interview (opened questions) in order to collect some portrays of Women in Copernicus

- Dissemination of the interview to the women who expressed interest at the end of the questionnaire (August, 24)

September

- Closure of the questionnaire (September 7): 475 answers!
- Closure of the online interview (September 14): 23 answers
- Writing of the first draft analysis of the questionnaire
- Collective analysis of the questionnaire
- Redaction of a guideline for the self-made videos
- Dissemination to collect the self-made videos to the women who expressed interest at the end of the interview (September 28)
- Collect of testimonials of women recording self-made videos (October 4): 9 testimonials

October

- Realisation of the promotional film, about 5 min (script : Women in Copernicus : context and objectives, questionnaire, barriers and facilitators identified, inspiring women short testimonial)
- A short version (about 1min) for promotion during talks, conferences, etc. will be done in November
- Realisation of thematic videos including women's self-made video testimonials
- Creation of a carrousel on the website with featuring women and their testimonials
- Dissemination to the mailing list to collect pictures and quotes from women interested in appearing in the carrousel
- Realisation of an infographic illustrating the results
- Creation of a subscription form on the website to being part of the network including mailing list, dissemination of events, networking opportunities, etc.
- Redaction of the report including a global analysis of the survey

November

- Publication of the results on the website -
- Dissemination of results on twitter, linkedin, mailing list
- Brainstorming on the following activities we are planning for the sustainability of the project such as e.g. networking (continuation of news sent through mailing list, discussion forum on the website, testimonials, dissemination activities, talks or round tables, etc.) or publication of a paper in order to reach broader audience

SOME EXAMPLES ILLUSTRATING THE PROJECT DISSEMINATION

On Twitter



and showcase testimonials of #WomeninCopernicus as inspiration for #youngwomen 🙊 👧 😤 *Could you help us again?*



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Women in Copernicus

We will identify and gather the stories of Copernicus Women in European Regions. S womenincopernicus.eu

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Women in Copernicus @WomenCopernicus · Jul 23 PHola!! #mujer que trabaja con #Copernicus 🗲 Visita la web womenincopernicus.eu 🕑 y responde a nuestra #encuesta Nos ayudarás a entender qué papel jugamos en el programa @CopernicusEU de la @EU Commission



We are working hard in having all ready to know more about you #Women in #Copernicus ! Stay tuned! 😌 😚 🧞 👩 👩 😡 👳 👳 😡 $\bigcirc 2$ ılt

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On websites

Austria

GI-Science - https://gi-science.blogspot.com/2020/08/women-in-copernicus.html

0 30

Germany

BBLA -

https://www.bbaa.de/1/news?tx_news_pi1%5Bday%5D=17&tx_news_pi1%5Bmonth %5D=8&tx news pi1%5Bnews%5D=184&tx news pi1%5Byear%5D=2020&cHash=7e c3c52b75bff6c8f8ce13c86008a1bf

France

Applisat - https://www.applisat.fr/enquete-women-copernicus

11 14

GéoGrandEst - https://www.geograndest.fr/portail/fr/actualites/women-copernicus BreTel - http://www.bretel.eu/index.php/component/content/article/8-actu/32-wic-1?Itemid=105

Belgium BELSPO - https://eo.belspo.be/en/news/women-copernicus-fill-survey SPW - https://www.linkedin.com/pulse/les-femmes-et-copernicus-women-nathaliestephenne/?trackingId=bzu%2BUk7TRbCk2eFTXgRpbg%3D%3D

- Spain

El Periodic - https://www.elperiodic.com/pcastellon/grupo-geotec-colabora-iniciativapara-conocer-oportunidades-obstaculos-mujeres-participan-programa-europeocopernicus_694445

UJI - https://www.uji.es/com/investigacio/arxiu/noticies/2020/7/women-copernicus/ RUVID - https://ruvid.org/wordpress/?p=56961

Website about the initiative http://geotec.uji.es/women-in-copernicus/

- Europe

NEREUS - https://www.nereus-regions.eu/2020/07/24/are-you-woman-working-incopernicus-fill-in-the-survey/

EARSC - https://earsc.org/2020/07/28/are-you-a-woman-working-in-copernicus-ifyes-please-fill-this-survey/?utm_source=rss&utm_medium=rss&utm_campaign=areyou-a-woman-working-in-copernicus-if-yes-please-fill-this-survey

CopHubAc - http://www.cophub-ac.eu/news/

Eurisy - https://hi-in.facebook.com/eurisy1/posts/1468490446683811

DURING EVENTS

Past events

- WiC at EOcafe (EARSC) : presentation of preliminary results and debate on Women in Copernicus (September 24) (<u>link</u>³ and <u>related article</u>⁴)
- WiC pitch during Nereus websession "Space Girl Space Women" (October 7) (<u>link⁵</u>)

Upcoming events

- WiC at CoRdiNet CopHub.Ac joint Final Event "A hitchhiker's guide to digitalisation in Europe the detour through Space" (November 5, confirmed)
- WiC at Copernicus Academy and Relays General Assembly (November 25, confirmed)
- WiC at EU Space Week at session "Space for Equality, Diversity & Inclusion" (December 7 11)
- WiC at CSO monthly video conference (January 2021, to be confirmed)

³ <u>https://www.youtube.com/watch?v=pdpLGzaXgqs</u>

⁴ <u>https://earsc-portal.eu/display/GB/2020/09/27/Women+in+Copernicus</u>

⁵ <u>https://www.youtube.com/watch?v=Oz7UFhRczLI</u>

Annex 3 - Visual identity and Motion design

Women in Copernicus visual identity brand has been designed by **Águeda Gómez Cambronero** as crew member of **Ubik Geospatial Solutions**. The standard logo should be used whenever possible. The vertical logo may be used in instances where spatial constraints require a more vertical configuration and the icon may be used in cases where the space is smaller and wordmark would not fit.



Women in

Copernicus

Vertical logo



UD Geospatial Solutions

We edited videos in order to promote the Women in Copernicus project: a motion design illustrates the results of the survey and thematic videos "Women talk about Copernicus" give Women in Copernicus a voice and a face bringing together women's self-recorded testimonials. These promotional material has been designed by **Ambre Bodénès** and is available on our website <u>http://womenincopernicus.eu/</u>

Icon

We thank all the participants to the survey and the project partners



http://womenincopernicus.eu/

How to cite this report?

The reuse and quotation of our results is allowed under licence CC BY-NC-SA 2.5 (Attribution-NonCommercial-ShareAlike 2.5 Generic) All the results, graphs and figures can be reused, with reference to this report: Women in Copernicus, Global analysis of the survey, October 2020, http://womenincopernicus.eu/ Please notice that this report captures a specific moment in time, gathering the views of 462 volunteer women and it does not aim at representing the views and opinions of all women working in the Copernicus sector.