

# Participation of women scientists in ESA solar system missions: an historical trend

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## Abstract

We will present the participation of women scientists in ESA (European Space Agency) solar system missions and discuss how this trend changed over time.

## 1. Introduction

A recent study by [1] analyzed the participation of women in US planetary science missions. Their analysis show women scientists to be consistently under-represented in NASA's robotic planetary spacecraft missions. We plan to count science team members of 10 ESA solar system missions over a period of 38 years and to determine the percentage of women on each team.

## 2. Method

We will follow the same methodology described in [2,3], for consistency with their study. We therefore will consider only the original team scientists from European institutions: engineers, members of project management, students and postdocs will not be included. For each team, we search team web pages, published articles and when possible, we directly contact the Principal Investigators. In order to determine gender we rely on personal knowledge, first name or photographs.

One difficulty we are encountering is to find the original team members, as often new members are added over time. An additional difficulty is to determine the percentage of women in the field during the missions' selection year, as this information is not easy to obtain for different European countries.

## 3. Preliminary results

As preliminary analysis we counted the number of Principal Investigators of 10 ESA solar system missions and determined the percentage of PI women (See Table 1). We excluded the Cassini mission, since it is particularly difficult to determine the original team members, but we plan to add it in future.

**Table 1:** Percentage of PI women involved in ESA solar system missions

Launch year	Mission name	#PI women	Total #PI	% women
1985	Giotto	1	9	11.1
2003	SMART-1	0	8	0
2000	Cluster	0	9	0
2003	Double Star	2	9	22.2
2003	Mars Express	0	10	0
2004	Rosetta orbiter	1	13	7.69
2005	Venus Express	0	8	0
2016	ExoMars/TGO - Schiaparelli	3	10	30
2018	BepiColombo	1	23	4.35
2022	JUICE	1	10	10

We will extend this study to the entire team members, including therefore also Co-Investigators of each mission.

## References

[1] Rathbun, Julie A.: Participation of women in spacecraft science teams, *Nature Astronomy*, Volume 1, id. 0148 (2017).

[2] Rathbun, Julie A.; Dones, Luke; Gay, Pamela; Cohen, Barbara; Horst, Sarah; Lakdawalla, Emily; Spickard, James; Milazzo, Moses; Sayanagi, Kunio M.; Schug, Joanna: Historical trends of participation of women in robotic spacecraft missions, American Astronomical Society, DPS meeting #47, 2015.

[3] Rathbun, Julie A.; Castillo-Rogez, Julie; Diniega, Serina; Hurley, Dana; New, Michael; Pappalardo, Robert T.; Prockter, Louise; Sayanagi, Kunio M.; Schug, Joanna; Turtle, Elizabeth P.; Vasavada, Ashwin R.: Historical Trends of Participation of Women Scientists in Robotic Spacecraft Mission Science Teams: Effect of Participating Scientist Programs, American Astronomical Society, DPS meeting #48,, 2016.