TOWARDS AUTONOMY FOR PLANETARY SCIENCE: SCIENTIST CHARACTERISTICS AND AUTONOMY ACCEPTANCE. J. Straub[1], [1]Department of Computer Science, University of North Dakota, 3950 Campus Road, Stop 9015, Grand Forks, ND 58202 United States, jeremy.straub@my.und.edu.

Previous [1] work described the attitudes of scientists from a variety of subsets of the planetary science community towards the use of autonomous control technology on a spacecraft. This work demonstrated that, while many were not particularly comfortable with its use, there were ways of mitigating the concerns of scientists.

The question, however, remained as to whether some subsets of the planetary science community were more amenable to control autonomy than others. In [2], additional analysis was conducted on the data collected at the Lunar and Planetary Science Conference (from 233 respondents) to determine whether a correlation existed between field of study and autonomous control acceptance.

One question on the survey was particularly telling with regards to autonomy acceptance. This question asked respondents to characterize their response, on a 9-point scale ranging from 9-strongly agree to 5-no preference to 1-strongly disagree, to the statement “as an editor for a journal, I would publish an article with computer-generated findings”. The average of all responses to this question for each research area is presented in table 1. An overview of the age distribution of respondents, by focus area, is presented (for comparison purposes in Figure 1). Prior work [1] did not identify a significant correlation between age and autonomous control acceptance.

References: [1] Straub, J. 2013. Attitudes Towards Autonomous Data Collection and Analysis in the Planetary Science Community. Galaxies, Vol. 1, No. 1. [2] Straub, J. 2013. Analysis of the Acceptance of Autonomous Planetary Science Data Collection by Field of Inquiry. Submitted to Advances in Space Research.

Table 1. Responses by focus to the statement “as an editor for a journal, I would publish an article with computer-generated findings” [2].

Research Focus	Resp.
Overall	5.46
Impacts	5.84
Planetary Dynamics/Tectonics	4.5
Planetary Differentiation	5.56
Planetary Atmospheres	5.89
Planetary Aeolian Processes	5.5
Planetary Fluvial Processes	6.75
Exobiology	5.71
Martian Geomorphology	5.82
Moon	5.63
Venus	5
Mercury	4.44
Planetary Mission Concepts	5.26
Other	5.31

Research Focus	Resp.
Planetary Polar Processes and/or Cryospheres	5.83
Planetary Volcanism and Igneous Processes	5.68
Cosmochemical Origins (disk evolution including accretion)	5.71
Presolar Grains and Interplanetary Dust Particles (including Stardust)	4.89
Small Bodies (including comets, asteroids, and near-Earth objects)	5.12
Chondrites and Their Components: Solar Nebular and Asteroidal Proc.	6
Material Analogs (including both physical and chemical)	5.45
Environmental Analogs (including terrestrial operational analogs)	5.17
Differentiated Meteorites and Bodies	5.1
Martian Geochemistry and Petrology	5.83
Instrument and Payload Concepts	5.68
Early Solar System Chronology	5.42
Outer Planets/Satellites/Rings	4.28
Education and Public Outreach	6.44

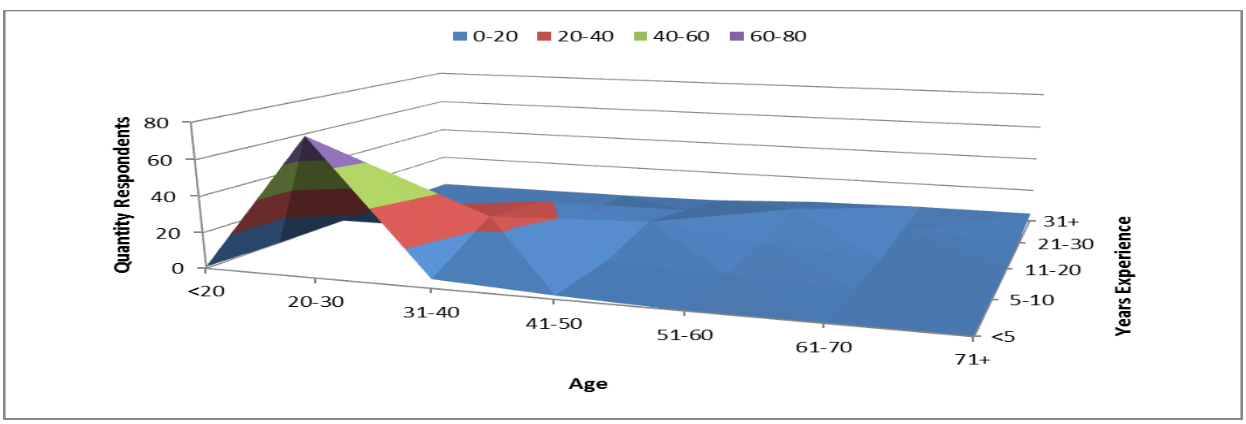

Figure 1. Correlation Between Age and Years’ Experience [2].