## 59th International Astronautical Congress 2008

# 37th SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) – The Next Steps (A4.) SETI II - Interdisciplinary Aspects of SETI (2.)

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# CORRECTING FOR INTERDEPENDENCE OF TERMS IN THE SAN MARINO SCALE

#### Abstract

The San Marino Scale, an analytical tool for assessing the significance of transmissions from Earth, was adopted by the IAA SETI Permanent Study Group in 2007. This additive model, which encompasses estimates of both signal strength and signal characteristics, remains a work in progress. It is statistically valid only to the extent that the two terms are assumed to be wholly independent discrete random variables. We question this assumption of independence, and, in fact, find a strong negative correlation between the two terms, though we further suspect that the interaction is nonlinear. Thus, we propose to amend the San Marino Scale, making it more statistically robust by capturing, and compensating for, this interdependence between detectability and information content.

### KEYWORDS

San Marino Scale, Active SETI, METI, transmission