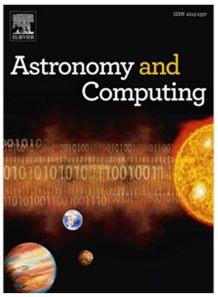
# Accepted Manuscript




Amateur public observatory I: The observatory and hardware integration system

J. Han, C. Wang, D. Fan, C. Cui, S. Li, L. Mi, Z. Li, Y. Xu, B. He, C. Li, S. Yang

PII: S2213-1337(18)30020-9
DOI: https://doi.org/10.1016/j.ascom.2018.09.002
Reference: ASCOM 247

To appear in: *Astronomy and Computing*

Received date : 27 February 2018
Accepted date : 4 September 2018

Please cite this article as: Han J., Wang C., Fan D., Cui C., Li S., Mi L., Li Z., Xu Y., He B., Li C., Yang S., Amateur public observatory I: The observatory and hardware integration system. *Astronomy and Computing* (2018), https://doi.org/10.1016/j.ascom.2018.09.002

# Amateur Public Observatory I: The Observatory and Hardware Integration System

Jun Han[a,*], Chuanzhong Wang[b], Dongwei Fan[a], Chenzhou Cui[a], Shanshan Li[a], Linying Mi[a], Zheng Li[a], Yunfei Xu[a], Boliang He[a], Changhua Li[a], Sisi Yang[a]

[a] *National Astronomical Observatories, Chinese Academy of Science, 20A Datun Road, Chaoyang District, Beijing, China*
[b] *Beijing University of Technology, No.100 Pingleyuan, Chaoyang District, Beijing, China*

**Abstract**

Public observatory is playing more and more important role in astronomy education, citizen science and scientific research. It is developing rapidly and has made some progress though a variety of approaches. As relative small number and high operating costs of professional observatories, it leads that only just a few students benefit. As a result, amateur astronomers begin to build their own remote observatories, but they also face great challenge, especially in hardware technology experience and construction funds. Their self-designed hardware connection and control system often breaks down, and then a stable hardware integration system becomes very critical. According to requirement investigation to dozens of the amateur, we propose an amateur public observatory model, and a hardware integration system as a bridge between observatory equipment and observation software. It not only can satisfy hardware requirement for multiple control modes, but also saves cost. It has great significance in promoting citizen science and astronomy education.

*Keywords:* Amateur public observatory, System integration, Citizen science, Astronomy education, Robotic telescope

*2018 MSC:* x-x, x-x

*Corresponding author
*Email address:* hanjun@nao.cas.cn (Jun Han)