

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Open Space: Participatory Space Education and Outreach (8)

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YATWORKS, A DISTRIBUTED REMOTE OBSERVATORY FOR EVERYONE

**Abstract**

Hands-on learning in astronomy and space science has a potent new tool available – YATWORKS. The York Automated Telescope Network concept is based on a widely dispersed set of independent, automated sky-imaging nodes linked by the internet and interactively controlled by non-expert end users. Ideally, a global distribution of sensors, image archives and users allows an individual to select an object or topic, then review historical information, acquire the latest data and model future events to plan later use. While conceived for low-cost visible-light imagers, YATWORKS would complement observations at infrared and radio wavelengths.

Functions of the physical nodes can include user interfaces, sky sensors and image archives. The user interface needs to prompt the user for a ‘topic’, clarify germane technical issues, and translate the topic into realistic YATWORKS actions. Sky sensors must acquire suitable imagery and also document local environmental and other conditions that may affect the image quality or usefulness. The (distributed) image archive is envisaged to utilize both conventional and custom browsing software, including search parameters derived from suitable image processing and comparisons with star catalogs. By keeping YATWORKS open-source, along the lines of Arduino electronics, it is expected that the entry cost – in funds and expertise – will attract many aspiring amateur astronomers and will facilitate exciting, interactive learning for new arrivals. Furthermore, mechanisms for modification of the system by the user will be presented.

At present, a demonstration sky sensor node of YATWORKS has been developed using a Meade LX200 telescope, a simple Webcam, a desktop PC and custom Matlab software. Performance data will be presented, along with design features and plans for the user-interactive evolution of the system.