Astronomical Training Networking for University Physics Lecturers and Science Teachers of Junior and Senior High Schools in Indonesia

D. N. Dawanas, C. Kunjaya, A. Wardana, and S. Siregar
Department of Astronomy and Bosscha Observatory, Institut Teknologi Bandung, Indonesia

ABSTRACT
To help teachers of the junior and senior high schools to understand astronomy for teaching their students, the Department of Astronomy ITB, together with the Ministry of Education, developed astronomical training for the physics teachers in 2004. Because there are a lot of schools’ teachers in Indonesia, and there is only a limited staff in the Department of Astronomy, the training will be done by making a networking between the Department of Astronomy ITB with the physics lecturers of the province universities and also with the science teachers of junior and senior High Schools. The first step, the Department of Astronomy ITB will offer an astronomical training to the physics lecturers of the secondary schools. The second step, these lecturers will develop astronomical training for the local physics teachers of the secondary schools.

Key words: astronomical training, astronomical education, high schools

1 INTRODUCTION

Indonesian success in the International Astronomy Olympiad (IAO) 2003 has led to the increasing of the participants of the Provincial Astronomy Olympiad (PAO), from 72 in 2003 to 1273 students in 2004. Unfortunately, this enthusiasm is not supported by a good astronomical knowledge. The grades of astronomy test from the PAO 2003 and 2004 are very low (Fig. 1). But, after the students who had passed the selection were trained for facing the IAO, they could understand the materials easily, and the results they got 2 second prizes (silvers medals) and 1 third prize (bronze medals) in the IAO 2003 (IAO 2003), and 1 first prize (gold medal), 1 second prize (silver medal) and 4 third prizes (bronze medals) in the IAO 2004 (IAO 2004).

The question is, why the students’ grades are very low in the PAO? From the discussion with these students, they said that they had never been got astronomical lessons in their schools. This is very interesting, because in the curriculum of the secondary schools, there are already astronomical lessons since 1994, as a part of physics lessons. The physics teachers of the schools also state that astronomy has never been taught because they themselves have difficulties in teaching. The reason is they also have never studied astronomy before.

1.2 ASTRONOMICAL TRAINING NETWORKING
To help physics teachers to understand astronomy in order that they can teach their students, in 2004, the Department of Astronomy ITB, together with the Ministry of Education, developed an astronomical training for the secondary schools teachers. This training had been done succesfully, and got a good response from the teachers. There were 9 teachers of junior high schools and 19 teachers of senior high schools following this training (Siregar et al. 2004). Although the
training was very useful for the teachers, there’s still a problem. There are thousands of secondary schools all over Indonesia, but the Department of Astronomy ITB has only a very limited staff, so it will take years to train astronomy to all physics teachers of the secondary schools. To solve this problem, the Department of Astronomy ITB has two ways. First, the Department of Astronomy, together with Ministry of Education, develops astronomical training for the physics lecturers of the province universities, especially state universities. After being trained, these lecturers, together with the local educational directorates, develop an astronomical training for the local teachers (Fig. 2), so that, there will be many more teachers who get the training, and the time will be shorter.

Second, materials of the astronomical training is written as a website on the Internet. This materials is made as interactive as it can be so that teachers can learn astronomy easily. Teachers can also ask questions about astronomy from the website by e-mail. Actually, website of this kind is not only for teachers, but also can be used by public. So, besides giving astronomical lessons for teachers and students, it also gives astronomical education for public and popularizes astronomy.

The Department of Astronomy ITB is always ready to give this training and make website about astronomy. But it needs financial to do these activities. For this problem, hope especially comes from the Ministry of Education.

REFERENCES