

VIII Азиатско-Тихоокеанская
астрономическая олимпиадаVIII Asian-Pacific
Astronomy Olympiad**Practical round**

- 8. The black cloud.** In science fiction novel "The black cloud", written by Sir Fred Hoyle in 1957, an interstellar dark cloud is discovered approaching the solar system. We will try to retrace the steps explained in the novel to estimate motion of the cloud. Two photographs given below show a small region inside the constellation of Orion. The photographs are taken exactly 2 years apart. The grid in the image has the size of $1^\circ \times 1^\circ$.
- 8.1.** In how many years (after the second image) the cloud will entirely cover the belt of Orion (seen on the left)?
- 8.2.** In how many years (after the second image) the cloud will arrive at the Earth? Assume the cloud to have uniform velocity throughout the journey.

