

The visibility of ISS

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We examined how the visibility of the ISS changed under various conditions. As a pilot study we took a series of photographs of the ISS. We defined the visibility index of the ISS as the visibility of the ISS is equal to the brightness of the ISS divided by the brightness of the sky. We showed our visibility index of the ISS in graphs, the results matched with our records of visual observation.

As for the brightness of the ISS, we set up a hypothesis that it is related to the position of the sun, the ISS and the observation points. We did an experiment with a model of the ISS and a light source to represent the sun. As a result, we found that the difference of the brightness of the ISS depends on the position of the sun, the ISS and the observation points.

As for the brightness of the sky, we took pictures of the whole sky every minute from sunset for 150 minutes with a fish-eye lens.

We have been comparing the predicted visibility index of the ISS with the actually measured value of the visibility of the ISS.

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