

# Welcome to the Third MAXI Workshop

Masaru Matsuoka

ISS Science Project Office, Institute of Space and Astronautical Science,  
JAXA- Japan Aerospace Exploration Agency,  
2-1-1, Sengen, Tsukuba, Ibaraki 305-8505, Japan  
*E-mail(MM): matsuoka.masaru@jaxa.jp*

## ABSTRACT

Welcome to the third MAXI workshop. We would like to thank so many participants from 10 leading countries with current and future great satellites. This gives us the greatest of pleasure. We would appreciate it entirely if you could provide recent science and useful comments to MAXI project.

KEY WORDS: welcome, MAXI WS, ASM

## 1. General Remarks on MAXI

MAXI is the first astronomical payload to be installed in Japanese Experiment Module (JEM) "Kibo"- Exposed Facility (EF), a component of International Space Station (ISS). Japanese modules are carried in three parts separately to ISS. The first part of Japanese modules was launched in March 2008, while the second part of them was just attached to ISS at the time of this MAXI workshop with Space Shuttle, "Discovery". Now JEM Pressurized Module (JEM-PM) with experiment logistics of Japanese Experiment Module has been completed by installing these two parts in ISS. On the other hand MAXI will be carried to ISS next year with JEM Exposed Facility (JEM-EF) (see the papers on MAXI in this conference).

MAXI provides an all-sky X-ray image every ISS orbit. By scanning the sky for one month, MAXI will be able to make an all-sky image for X-ray sources stronger than one milli-Crab, excluding the bright region around the Sun. MAXI will rapidly report X-ray novae or highly variable phenomena of X-ray objects to astronomers worldwide if these objects are discovered. Furthermore, MAXI does not only provide short and long-term variability of Galactic and extra-Galactic X-ray sources, but also provides catalogues of all-sky X-ray sources every month and/or year. Moreover, MAXI provides Galactic diffuse soft X-ray map with line resolvable CCD camera.

## 2. A History of MAXI

MAXI has a long history with ISS project. Japanese space agency "NASDA" which is a previous name of JAXA has promoted payloads for exposed facility on ISS as well as micro-gravity experiments in pressurized module. Therefore, we have considered for about 20 years

what the most suitable payload is or ISS or JEM-EF (Matsuoka et al. 1990).

As you know the ISS can not provide ideal environment and perfect condition for observational payloads because of complicated interface, uncertain schedule behind, attitude fluctuation, rigid/severe safety design, limited operation and communication resources and so forth. We have to accept such environment and condition to design scientific payload on ISS.

Nevertheless, ISS project has been promoted by international political strong power. Some pure scientists have escaped from ISS project or sometimes have been negative to ISS project because of pushing pure science budget. On the other hand, as long as ISS project is promoted, we have followed ISS to make it useful with flexible mind and without any political reason.

After comprehensive investigation we have concluded that an all sky X-ray monitor is the most suitable/reasonable payload. At that time we discussed on fundamental design of the ASM which type of ASM is the most suitable for ISS, a coded mask type or a pin-hole type. At last we have arrived at an idea of an X-ray all sky image monitor by using slit cameras; that is, MAXI (Matsuoka et al.1997). Finally MAXI was approved in 1997 by NASDA and Japanese SAC (Space Activity Commission).

Now, more than ten years has already passed from beginning although we prepared ourselves for such delayed time. MAXI colleagues from beginning have gotten more than ten years as me. Some colleagues have become big professors from normal researchers and so forth. In other words MAXI team members have changed considerably, but fortunately expanded without decay from beginning to the present.

MAXI development has been advanced so much since

1997. Meanwhile, X-ray astronomy has progressed greatly with exciting results provided by several X-ray astronomy satellites. Most satellites have performed pointing observations with narrow field of views. Only the Rossi-XTE satellite which has been operated since 1995 have an X-ray ASM to monitor bright novae and Galactic variable X-ray sources.

### 3. Conclusion for important mission of MAXI

Although the ASM on RXTE has produced much data on X-ray novae and/or transients, we believe that what we search nova-like or variable X-ray objects is able to achieve still useful and important science, especially for weaker sources. Systematic all sky survey with non-bias is still interesting in future. Therefore, the concept of MAXI is alive and useful to answer the quests for the science of variable, transient and bursting objects over the Galaxy.

Now, MAXI is scheduled to be launched by Space Shuttle Endeavour in the middle of next year. After MAXI is mounted on JEM-EF of ISS, we will adjust data processing systems and carry out various performance observations for several months. We welcome you to participate in MAXI science and utilize its observation data.

### 4. Acknowledgement

Finally I would like to thank the organized committee who are all MAXI active colleagues for preparing this workshop. Special acknowledgement would be given to Dr.Kawai, Dr.Mihara, and Dr.Kohama who are involved in this WS preparation. I would also thank Mrs.Takahashi and the colleagues in RIKEN as host institute for elaborate preparation of this workshop.

Thank you very much again for your participation.

### References

- M.Matsuoka et al.; 1990 "An X-ray All Sky Monitor for a Japanese Experiment Module on the Space Station", "Observations in Earth Orbit and Beyond", pp463-468 (1990), ed.Y.Kondo, Kluwer Academic Publishers
- M.Matsuoka et al.; 1997, "MAXI (Monitor of All-sky X-ray Image) for JEM on the Space Station", SPIE - Soc. of Photo-Opt. Instr. Eng. Vol. 3114 "EUV, X-ray and Gamma-ray Instrumentation for Astronomy VIII", pp.415-421.