Construction of the Monitoring Systems to Protect Iraqi Cultural Heritage

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Introduction

- The Making of the Base Maps of the Ancient Sites in the Mesopotamian Region based on ALOS Data (Kyoto, 2007)
- **Investigation on the Ancient Site Location in the Mesopotamian Region Based on ALOS Data (Rhodes, 2008)**

- The present condition of Iraq Cultural Heritage is not safe, and happened mass destructing and looting.
- The ancient sites spread all over the country in Iraq, so it is difficult to manage protection.
- It is necessary to the making of base map using satellite data ALOS.
- Sharing the information with State Board of Antiquities and Heritage in Iraq and making the database of Ancient Site of Iraq

- Construction of the Monitoring Systems to Protect Iraqi Cultural Heritage (Hawaii, 2009).
The making of the base map of the ancient sites of the Mesopotamian region, 2007~2011
The Database of Ancient Sites in Mesopotamian Region

GIS

Spatial Information

Documents
• Excavation report

Archaeological Map
• Ancient Sites Distribution Map

Base Map
• ALOS
• CORONA
Destruction of Cultural Heritage in Iraq

Iraq National Museum

Archaeological site

Taken by Ken MATSUMOTO in May, 2003

National library
Destruction of Cultural Heritage in Iraq

Isin
Destruction of Cultural Heritage in Iraq

QuickBird 2004 08 25

Base

Trench
The Database of Ancient Sites in the Mesopotamian Region

GIS

Spatial Information

Documents
• Excavation report

Archaeological Map
• Ancient Sites Distribution Map

Base Map
• ALOS
• CORONA
Preparing base map

METHODOLOGY

- ALOS AVNIR-2
- ALOS PRISM
- Other Satellite Data (CORONA, ASTER, LANDSAT)
- Available Topographic Maps
- DEM (from ALOS, ASTER, SRTM)

Ortho (RPC File) → Pansharpening → GCP → Geometric Correction → BASE MAP

Present (ALOS) → Past (CORONA)
The Ancient Sites Database of the Mesopotamian Region

Documents
- Excavation report

Archaeological Map
- Ancient Sites Distribution Map

Base Map
- ALOS
- CORONA

Spatial Information

GIS
Distribution Map (Ancient sites + Base Map)

Ancient site list (Field work)

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Base Map

GIS

Distribution Map of Ancient Sites
Monitoring Systems to Protect Iraqi Cultural Heritage

IRAQ

List of Ancient sites

JAPAN

List of Ancient sites ( Interpretation )
Base Map

Database of Ancient Sites
Monitoring Systems to Protect Iraqi Cultural Heritage

IRAQ

List of Ancient sites

JAPAN

List of Ancient sites (Interpretation)
Base Map

Database of Ancient Sites

Patrol

Monitoring
Monitoring Systems to Protect Iraqi Cultural Heritage

Test Field: Umma area
Umma

2003-02-22

2008-07-08
Umma
Um al-Aqarib
Photo: Haider Abdollwahed Oraibi (SBAH)
Conclusions

It is useful to make the basemap, using basic technique of remotesensing. It is also useful and important to use satellite image to monitor the looting.

At first, we planned to use Quickbird data for monitor ancient sites. Nevertheless, because of the cost and the limited photographed area, it is not practical to use high-resolution data. Therefore, we look for the ways to use middle-resolution data for the monitor. It will be fundamental to cooperate with Iraqi State Board of antiquities and Heritage to make accurate database of Ancient sites, then there will be possibility to make use of middle-resolution image for monitoring the sites. For important sites, we will also obtain high-resolution data from Quickbird. This method allows us to cover wide area with low budget to protect cultural heritage in Iraq.
This time, we use the recent ALOS Data, so we could not compare the transition of looting. We are planning to develop the automation of data interpretation to locate the looting area. In order to protect cultural heritage we are going to deepen cooperation with Iraq.
The data from ALOS and RPC information used in this study were high-level products prepared at JAXA EORC under the agreement of JAXA Research Announcement entitled “The making of the base map of the ancient sites of the Mesopotamian region and its utilization” (JAXA-PI 418, Ken Matsumoto). I would like to thank Dr. Shimada and Dr. Tadano of JAXA for their useful advice.