

**NOAA Sponsored: 2006-2016 Asian Remote Sensing Market Study  
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**Abstract**

Under a contract with the U.S. National Oceanic and Atmospheric Administration (NOAA), Satellite and Information Service Division, Global Marketing Insights, Inc. completed a comprehensive research study of the **2006-2016 Asian Remote Sensing Market** (Aerial Film, Aerial Digital, Aerial Sensors, Satellites, and Remote Sensing Hardware and Software sectors).

This presentation will include the five- and 10-year analysis of the political, economic and technical trends impacting the Asian remote sensing market with comparisons of the Asian results to the same study completed in 2005 that focused on North America and Europe. The survey respondents represent commercial, government, and academic end users. Asian responses represent their usage of Imagery Analysis Software, and GIS Data, applications, and budgets impacting their usage of remote sensing data and software tools. To date, this study demonstrates that ESRI is the software of choice selected by over 85% of the Asian respondents.

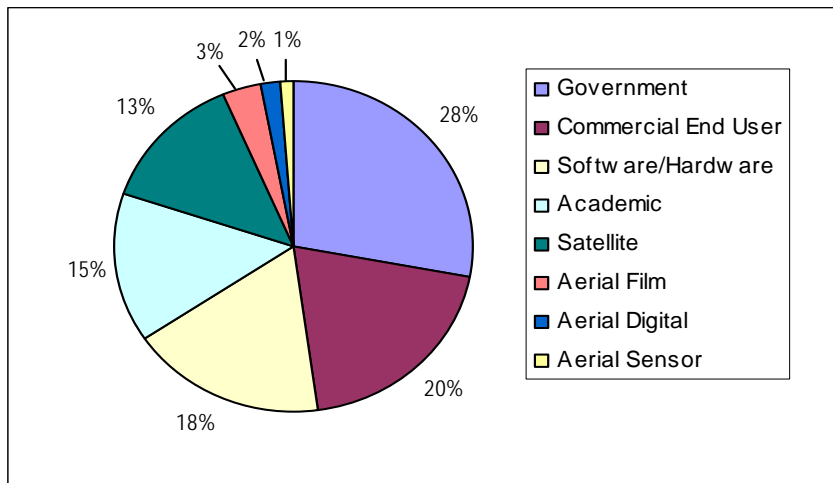
Four hundred and eight (408) survey responses were completed on-line representing Asia and 50 personal interviews were also conducted.

This presentation provides the research highlights of the technology and trend findings.

**Research Supports Asian Growth Predictions in Industry**

The future of geospatial technologies is looking better than ever. In a comprehensive review of the international remote sensing market for aerial and spaceborne sensors and associated geospatial technologies, growth of the Asian industry over the next decade looks strong, with the Satellite sector expecting large demand internationally, based on their commitment to completing over 40% of the world's planned remote sensing satellite launches. Unlike the Western study it is difficult to get a clear picture of the growth of the Asian Aerial industry due to the high level of government involvement in that sector. Compared to the Western Study, there was a much lower response from the Asian Aerial Sectors. This low response rate could be indicative of the high level of Asian government management of the aerial remote sensing industry

Funded by the National Oceanic and Atmospheric Administration, the study includes over 400 online surveys and 50 personal interviews. The surveys and interviews provide a sample from the following eight remote sensing project sectors: Aerial Film, Aerial Digital, Aerial Sensor, Satellite, Software/Hardware Providers, Commercial End User, Government End User and Academic End Users. Although the survey was focused on the U.S., Canada and Europe, the survey results also represented global input, with respondents representing over 40 Asian countries.

**Chart 1: NOAA 2006 Asian Remote Sensing Study Respondents by Sector**

Of the 408 Asian survey responses, 28% came from the National (mostly Civilian) Government Sector

### Technical, Environmental, Economic and Political Trends Impact Industry Development

#### Technical Trends 2006-2016

The Western respondents most frequently mentioned *technical advances* centered on improvements on existing technology, rather than the development of new technologies. This included the “Integration of Existing Technologies,” which for purposes of this study is defined as the integration of presently independent and/or semi-independent technologies to generate a geospatial product. However, the Asian respondents ranked “Technology Integration” third, selecting “Greater Ground Resolution” as their first choice for what they believe will most impact their use of remote sensing data. This choice was followed closely by “Improved Airborne GPS Units.” “Greater Ground Resolution” was the number one selection by the Asian Satellite and all End User Sectors.

The Western Study Government respondents selected “Technology Integration” and “Greater Ground Resolution” as having the greatest impact on their use of remote sensing data in the future, while the Asian Government respondents selected “Improved Airborne GPS” and “Greater Ground Resolution,” with “Technology Integration” ranking fifth in their selections. The “Improved Airborne GPS” selection by the Asian government respondents is not unusual, given their high level of involvement in aerial acquisitions in their countries.

The Western Study respondents in the Satellite Sector also selected “Technology Integration” and “Greater Ground Resolution” as having the greatest impact on their businesses. Asian Satellite Sector respondents chose “Greater Ground Resolution” and “Improved DEMs and Ground Control” as their top selections.

The Aerial Industry in the Western Study also selected “Technology Integration” as the main trend impacting them technically. The Asian Aerial Sector respondents were focused in the next five years on “Better Processing Software, Improved IMU Units, and Stereo Imagery.” The Asian Aerial Sensor respondents were the only group selecting “Technology Integration” as having a near-term technical impact on their business.

### Political, Economic and Environmental Trends 2006-2016

Respondents in both the Western and Asian studies were asked to select *Political, Economic, and Environmental Trends* that will impact their businesses during the next decade. Western Study respondents selected “National Defense/Homeland Security” as the main impact on their usage of remote sensing data (primarily influenced by the US and Canadian responses). This is not an unusual response, given not only the surge of interest in geographic information systems (GIS) and the corresponding demand for the data needed to populate these databases, but also the influence of counter terrorism programs in the US and the increase of data usage supported by online mapping services such as Google Earth, and Microsoft Virtual Earth.

Overall, Asian respondents selected “Remote Sensing Data Becoming a Commodity” as the main trend which would impact their use of remote sensing data, with one major exception. None (0%) of the Asian Satellite respondents selected “Remote Sensing Data Becoming a Commodity.” The Asian Satellite Sector respondents chose “National Defense/Homeland Security” as the top trend impacting their future. Keep in mind that in the Western Study, “Remote Sensing Data Becoming a Commodity” ranked in the top four selections by both data users and data producers, demonstrating their awareness that this trend, if realized, could have a dramatic impact on the commercial end-users and the Hardware/Software value added sector, due to data becoming more standardized and easier to purchase at lower prices. This same trend may cause concern over their profit margins in future years to the data providers.

Ranking third in the Asian Study and fifth in the Western Study is “Global Warming,” supporting what we are seeing in worldwide legislative bodies that are mandating and funding remote sensing applications focused on global warming applications. “Required Cadastral Mapping,” which is greatly influenced by the European Union’s country admission requirements, ranked third in the Western Study.

It is interesting that in the Aerial Sectors for both the Western and Asian studies, one of their main selections of a high impact trend was “Outsourcing/Privatization.” During the past year in the West, outsourcing their data processing and value-added services has become more common as aerial mapping companies have looked for new ways to remain competitive. Wages in Asian countries are lower than in the US, Europe and Canada, and with the ability to electronically transfer large volumes of data quickly, it has become increasingly attractive to establish overseas operations. The selection of this trend in both studies demonstrates its impact on both the Western and the Asian Aerial businesses.

Another key selection by the Aerial Sectors in both studies was the “Open Skies Initiative.” The Open Skies Treaty signed in Helsinki, Finland in 1992 by a number of countries allows the operation of aircraft and sensors, without undue hardship, in the airspace of another nation in order to monitor various types of military activity.

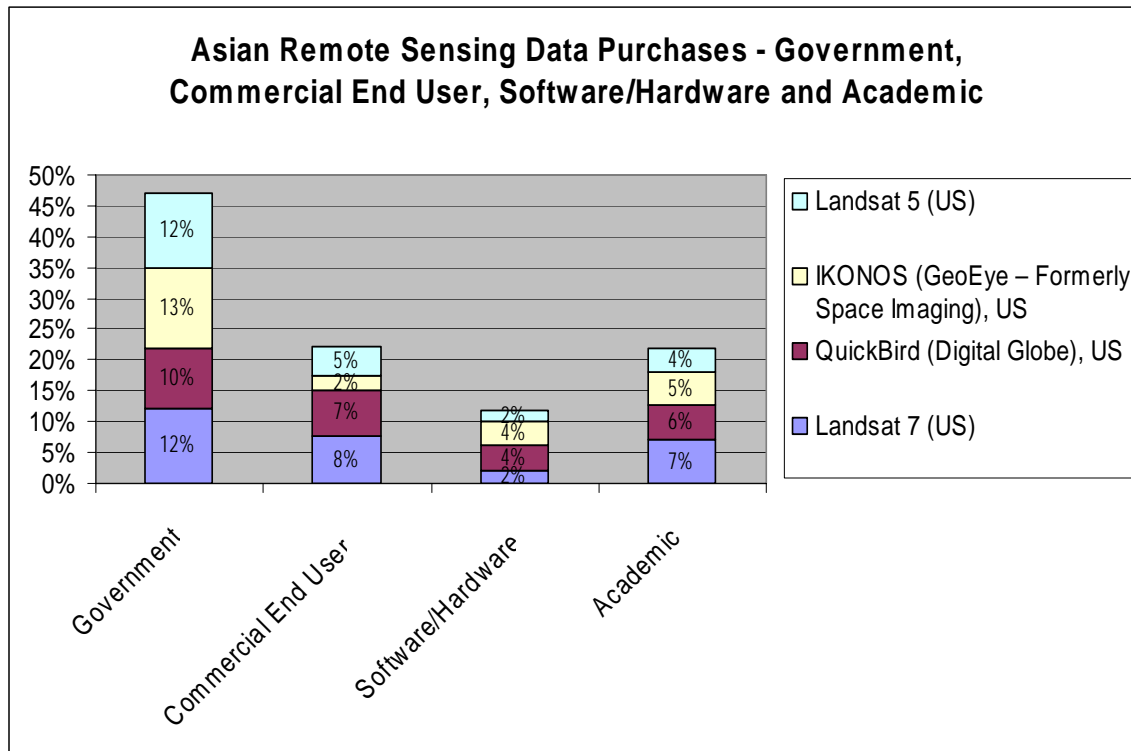
### **Asian Government and Commercial Usage of Data and Software Continue Upward Trend**

*Satellite Data Usage:* Generally, remote sensing data usage selections were very similar between the Western and Asian respondents. The data usage comparison points out the higher level of usage of spaceborne instruments in Asia, with over 80 percent of the respondents selecting satellite data, compared to 68 percent of the respondents in the Western Study selecting satellite data usage.

Asia’s highest use of satellite imagery is in the mid-resolution category with Landsat 5 and 7 (due to their long history, low cost and availability, especially in China and Australia), followed

by India Remote Sensing (IRS) Resourcesat and IRS 1C and 1D. The largest user of data in the mid-resolution category among Asian respondents was the Government Sector for all types of mid-resolution data, followed by the Commercial and Academic Sectors, whose highest level of data usage was Landsat 7, which was followed closely by Resourcesat. The Hardware/Software Sector's highest data usage was IKONOS and QuickBird. The use of Asian Satellite data was, not surprisingly, higher in this study than in the Western Study.

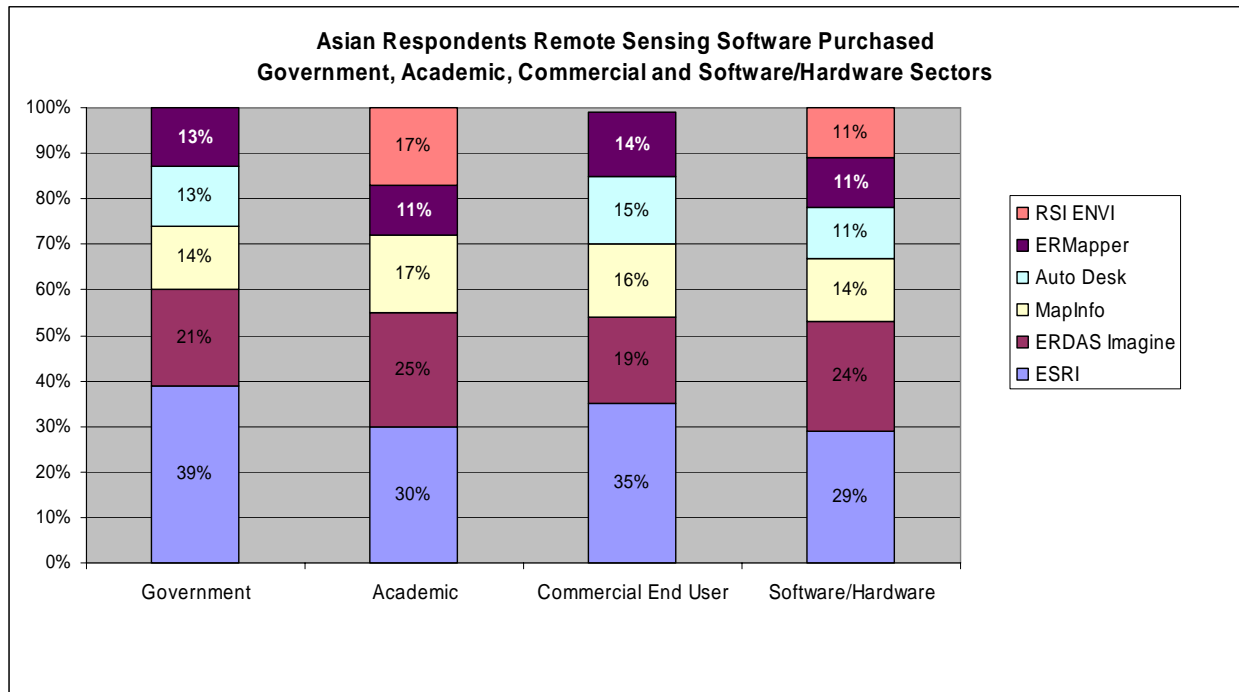
**Figure 1: 2006 Asian Respondents Remote Sensing Data Purchased**



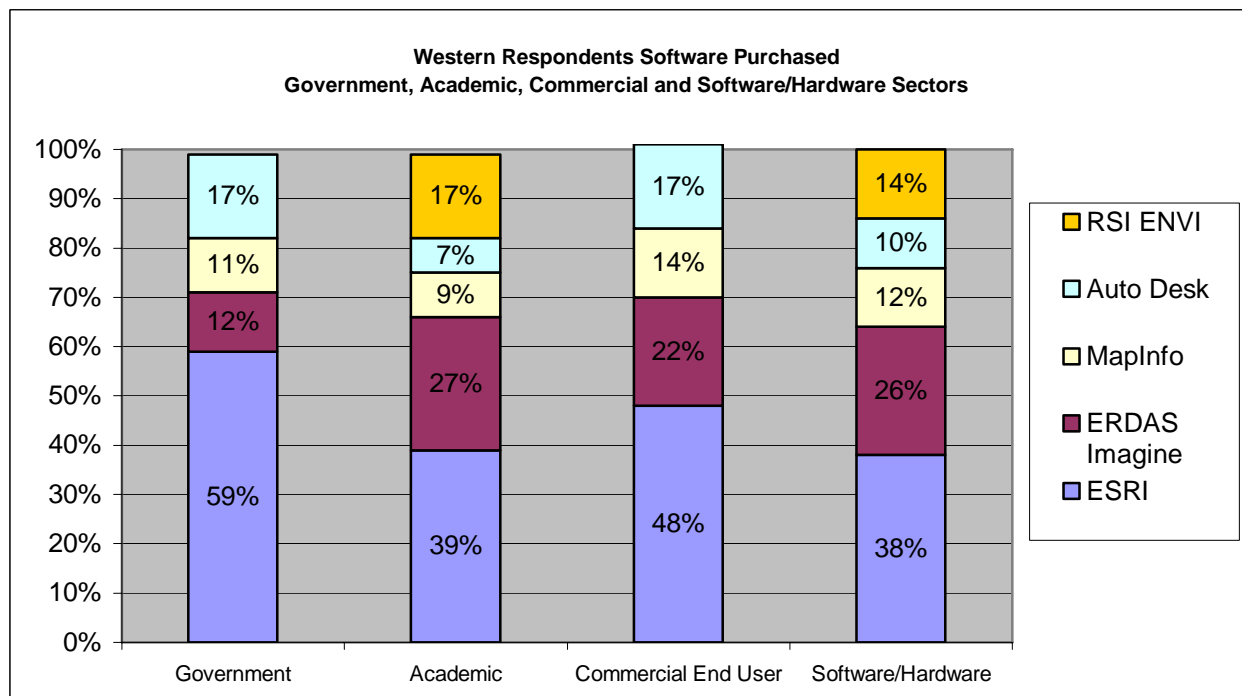
*GIS Software Usage:* As in the 2005 Western Study ESRI was the overall winner when it came to software usage. About 40 percent of the Asian Government Sector utilizes ESRI software, followed by ERDAS Imagine. The Asian Government respondents indicated relatively low remote sensing software budgets, with over 50 percent of the respondents spending less than \$50,000.00 a year over the next decade. The Asian respondents demonstrated a much more diverse use of GIS software than did the Western Study and also showed there was significant room for growth in the coming decade.

The youthful workforce of Asia which is at least ten to fifteen years younger than the Western workforce also provides a great opportunity for growth for software and imagery providers alike.

**Figure 2: 2006 Asian Respondents Remote Sensing Software Purchased**



**Figure 3: 2005 Western Respondents Remote Sensing Software Purchased**



## Strong Growth Predictions in Asia's Satellite and Hardware and Software Remote Sensing Sectors

Although the U.S. had a strong showing in the remote sensing sectors in the 2005 Western Study, the Asian Study clearly demonstrates the strength of the Asian remote sensing community in the Satellite and Hardware/Software Sectors. The dynamics of the remote sensing satellite community are evening out among the U.S., European and Asian community. With Asia responsible for almost 50% of the planned launches in the remote sensing satellite community in the coming decade they have made it clear to their world what their commitment is. Their governments are providing strong support for them to be key players in global remote sensing industry.

**Table 1: NOAA 2005 and 2006 Remote Sensing Sector Response Comparison**

Geographic Region	Aerial Film	Aerial Sensor	Aerial Digital	Satellite	Com'l End User	Government	Acad.	Software/Hardware
U.S	59%	75%	61%	24%	50%	56%	45%	39%
Canada	3%	3%	4%	4%	11%	9%	5%	9%
Europe	15%	12%	9%	16%	8%	4%	12%	5%
Asia	19%	7%	17%	43%	18%	19%	20%	38%
Central & South America	3%	0%	2%	3%	3%	2%	5%	3%
Australia	0%	2%	2%	2%	1%	1%	1%	0%
Africa	3%	2%	4%	7%	7%	6%	11%	3%
Other	0%	0%	0%	2%	2%	2%	2%	3%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

In summary, the Asian remote sensing profession is growing and will continue to do so over the next decade. The recognition of Asian remote sensing professionals as leaders in the development of aerial and spaceborne remote sensing capabilities will continue and grow as additional data sets are offered to the rest of the world. Asian remote sensing data providers are feeling the pressure from their governments to show commercial value for their remote sensing programs and to make the data available globally. During the coming decade, Asian data producers and providers will continue the rapid advancement of their technologies and will further blur the distinction between Western remote sensing programs and their own.

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