

Editorial

Advocating the Regionale Scale, or 'Medium is Beautiful'

Dear reader, please open the ISPRS "blue book". You will read we have five types of members. Honorary members? Every profession has outstanding scientists and engineers of its own. Ordinary members? Everybody cannot be an exception. Associate members? Having friends is nice. 51 Sustaining members? Indeed, we have an efficient treasurer. What about regional members? What kind of a role could they have?

Perhaps you will think: well, they have seven Technical Commissions, with a lot of working groups, making a huge job in quite different fields ranging from sensor calibration to pattern recognition and education issues. Their Council is made of six volunteers managing day-to-day matters as well as strategic issues. These busy people cannot afford to have a close connection with every country, so they have some go-between structures making an interface at regional level. Such an answer has an advantage: it is simple. It has also a disadvantage: it is false (except perhaps for quite minor exceptions).

It should be reminded that both photogrammetry and remote sensing at its beginning are or were addressing "local" scales, in the widest sense. We have "close-range photogrammetry", we do not have "far-range photogrammetry". Remote sensing at its beginning was linked to LANDSAT MSS then TM and SPOT images (plus airborne remote sensing, often implemented by the same operators in preference to airborne photogrammetry). Topographic and thematic mapping at more or less similar scales were the common root. I remember the beginning of SPOT. Photogrammetrists (pioneered by Georges de Masson d'Autume, an ISPRS honorary member) intensively used panchromatic images to build 2-D and 3-D topographic maps, while specialists of remote sensing used multispectral images to set up methodologies for thematic mapping, including dynamic phenomena such as agricultural monitoring. But indeed both images were 60*60 km large, with respectively 10m and 20m resolution. This could be considered as "local scale".

Indeed, space tools (and ground based networks) existed to address regional or continental scales. But the community of meteorologists that used these tools was quite well structured for its own needs (for instance through the Weather World Watch program). A few pioneering remote sensing specialists made efforts to derive, for instance, albedo or thermal inertia from geostationary satellites at regional and sub-continental scales. Nevertheless, this small community grew when scientists realised that studies at regional scales such as desertification, deforestation, global vegetation monitoring could be

developed using the NOAA polar orbiting meteorological satellites, in particular the AVHRR sensor. The system fully met the meteorologists' requirements, but remote-sensing scientists had to face another story. Major challenges were in front of them. The spectral bands were not tailored to such applications. The orbits of the satellites were shifting with time. The size of the pixel was highly variable within the field of view. Above all there was no central archive for the highest resolution images, so they had to be collected worldwide in HRPT receiving stations, having different standards, different processing methods (often poorly traceable), poor archiving facilities if any. Nevertheless, outstanding work was done at regional level. Results were sometimes questionable (and disputed!) due to such poor conditions, but a strong impetus was given. Systems addressing the regional scale using more appropriate technologies were developed. Monitoring the ocean color in open seas and coastal zones is a major but quite specific objective, for which several systems were built. More widely dedicated systems were designed. A first example was VEGATATION-1 on-board SPOT-4 (now followed by the second model on-board SPOT-5), operated simultaneously with "local" sensors in similar spectral bands. The Indian IRS satellites followed the same path. New sensors such as MODIS, on-board TERRA, and MERIS on-board ENVISAT are also dedicated to regional scale observation and monitoring, with innovative features paving the way to new findings and applications.

Indeed, coupling regional and more local scales is a promising way for research, scientific and commercial applications of remote sensing techniques, coupled with in situ measurements. It should be acknowledged that our natural resources and our environment are mainly driven by meteorological and climatic factors, which by nature have a global and regional scale and do not know political boundaries. The general imprint of their impacts can first be read at the regional scale. When addressing the socio-economic impacts and responses, local, national and regional scales have to be considered. Actually, men act individually or even collectively at local scale. The evolution of land use must be first analysed at that scale, addressing for instance deforestation patterns, cultural changes in surface and cultural content of fields, evolution of fallow lands, pastoral areas, etc... It should also be recognised that political decisions which have a key impacts on these issues are taken at the national scales.





The illustration shows the regional ISPRS seminar in Dar Es Salaam: three ISPRS actors coming from different regions (left to right: Heinz R  ther, Subtropical South Africa; G  rard Begni, Western Europe; Tuan-Chih Chen, Eastern Asia) discussing about regional issues.

Some very large countries such as for instance Canada, USA, Brazil, Russia (not to mention the former Soviet Union), China are indeed close to regional scale. The same can be applied to consolidated political structures such as the European Union plus countries in an accession phase. But most often natural regions are divided into a number of countries having different political guidelines, leading to differentiated policies and anthropic retroactions on the regional environment. This is for instance the case in a complex region such as the Mediterranean. Nevertheless, regional or sub-regional anthropic leading features do exist beyond these national differences. Differentiated demographic evolution between the Northern and the Southern rim of the Mediterranean is a significant regional driving factor that needs to be coupled with scenarios on future climate change (mainly in terms of water resource) and present observation of such factors as cultural practices evolution, desertification monitoring. Trends at regional scales have to be analyzed and widely

advertised since they are an overarching framework which national or local policy makers cannot afford to ignore. Even narrow-minded visions of local and national interests can take advantage of regional visions of climate change issues, natural resources evolutions, or alliances in Multilateral Environmental Agreements negotiations.

This brings us back to ISPRS regional members. Indeed, they have to play a key but difficult role. Remote sensing, used together with in situ physical and socio-economic data, is an essential tool to address the issues of interest at their working scale. Most often, these issues are key steps to sustainable development, which will be soon debated at the world-wide level during the Earth Summit in Johannesburg. Having proper links with scientists, service structures, decision and policy makers, NGOs and local populations is a key issue. It should not be a top-down approach, but a two-ways fruitful dialogue. Interdisciplinary research, capacity building and dialogue is quite mandatory.

For all these reasons, ISPRS has the duty to pay a special attention to the regional scale, considering the dramatic recent technological evolutions that allow better addressing regional issues. It also must be underlined that the most threatened or fragile regions are often the poorest ones. ISPRS has also a solidarity mission within its own field of action. The recent joint symposium of WG VI/1 and VI/3 in Dar Es Salaam, Tanzania, is a good example to be followed. In that respect, I could not find any better conclusion than these words written by our Treasurer, Ammatzia Peled, in his editorial of the September 2001 issue of ISPRS Highlights (Vol.6, N°3): "Used wisely and modestly, even little numbers may act magnanimously".

G  rard Begni, Second Vice-President

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