

THE ROLE OF EDUCATION IN THE INTERNATIONAL MAP YEAR 2015/16

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ABSTRACT:

This paper considers the nature of the ICA-organised International Map Year (IMY), an initiative supported through United Nations structures, including the United Nations initiative on Global Geographic Information Management (UN-GGIM). Preparatory work for this project has been undertaken by a Working Group of the International Cartographic Association, and details are presented of the way in which IMY will be organised and promoted. Particular activities mentioned in depth include ‘national map days’, children’s activities, and a new book. The educational aspects of IMY are addressed, and the roles of the events and resources are considered. It is concluded that IMY gives a significant opportunity to the world-wide cartographic community to promote its discipline through the medium of a series of activities which can be co-ordinated by ICA, but delivered at a national level.

1. INTRODUCTION

This paper introduces the concept of International Map Year (IMY), explaining its aims and methods of delivery. As one of the major purposes of IMY is to educate a number of different interest groups in the general public on the role and value of maps, education is a core activity within this project. After a detailed description of the nature of the IMY project, therefore, an indication of the role of education in IMY is presented.

Maps have for a long time been produced on paper and printed as single pieces or in atlases. Today, most maps are distributed via the Internet. Maps are used in many information systems for understanding the usefulness of geographic information. Topographic maps have for a long time been used for navigation both on foot, by car, for flying and in marine navigation. Historical maps may be used for understanding previous development and events, and perspective maps or planning maps for understanding future possibilities.

The main purpose of the International Map Year (IMY) is to expose such importance of maps and geographic information in human society. Our ever more complex civilisation would be lost without maps and a proper use of geographic information. It is therefore most important that every global inhabitant has access to maps and to geographic information, and that maps and geographic information can be easily retrieved and used.

Following the convincing nature of such statements, the United Nations Regional Cartographic Conference (UNRCC) in Bangkok in October 2012 adopted a resolution stating that, on behalf of UNRCC, the International Cartographic Association (ICA) should organise the International Map Year 2015. The resolution reads as follows:

The conference,

recognizing the enormous benefit of reliable and authoritative geospatial information and maps in decision making for sustainable use of natural resources, economic development and for community well-being;

noting the need to promote geospatial information education and training for national governments, decision makers, the geospatial industry and users;

also noting the preparations made by the International Cartographic Association ad-hoc committee for the International Map Year, and the support by the Joint Board of Geospatial Societies (JB-GIS) on this initiative;

recommends the International Cartographic Association (ICA) to organize an International Map Year in 2015.

Significant preparatory work has been carried out since that conference, with the establishment of an IMY working group under the auspices of ICA, and the raising of the profile of IMY within the United Nations itself. Pragmatically, it was determined that the most appropriate vehicle for driving the United Nations involvement should be the United Nations’ Initiative on Global Geospatial Information Management (UN-GGIM).

2. WHAT IS INTERNATIONAL MAP YEAR?

IMY is a worldwide celebration of maps and their unique role in our world. IMY provides opportunities to demonstrate, follow, and get involved in the art, science and technology of making and using maps and geographic information. It is intended that, with the assistance of the UN, the UN-GGIM and ICA, IMY will be celebrated across the planet: ICA expects that all its members (about 80 member nations worldwide) will participate in order to give each citizen a broader knowledge of maps – how they are produced and used for many purposes in society. IMY will provide opportunities to demonstrate, follow, and get involved in the art, science and technology of mapping and handling geographic information.

The specific purposes of IMY are to:

Make maps more visible to citizens and school children in a global context;

Give all students an opportunity to learn more about cartography and about its associated geospatial sciences – geodesy, photogrammetry, remote sensing and surveying;

Show how maps and atlases can be used in society;

Encourage all to experience how information technology can be used in acquiring and handling geographic information, and how it is possible to produce one's own maps;

Display and show different types of maps and map production;

Show the technical development of mapping and atlas production;

Demonstrate the necessity of a sustainable development of geographic information infrastructures.

IMY activities will focus on children and the general public, but also involve professionals and government agencies, thus covering a significant number of non-specialists, with the intention of showing the value of maps to all sectors. It is also hoped that the increased awareness of maps resulting from IMY will improve the recruitment of students to cartography and cartography-related disciplines, and will encourage interest in ICA itself. The latter will be evident by increased membership among nations and also by affiliate commercial, academic and government companies and agencies.

From the perspective of the United Nations organisation there are some further aims:

To provide recognition by the United Nations and Member States of the importance of maps and geospatial information;

To ask Member States to encourage national mapping agencies and relevant government offices to take part in the IMY;

To encourage member states on further support in making maps and geospatial information more accessible;

To motivate member states to improve the overall knowledge of the general public in how to use maps and geospatial information;

To provide recognition among geospatial professionals and local governments on the status of their work.

3. ORGANISATION AND MANAGEMENT OF IMY

Through the special Working Group, ICA will deliver a set of guidelines and resources allowing national delegates and cartographic organisations to offer a full programme of activities and events. Primary management will be at national level, with each country having different contexts within which to address the IMY agenda.

Thus, an important first step is to ask member nations to set up a National Committee to support IMY activities and provide the public and ICA with basic information about the planned activities. ICA will also encourage those who are not members to use existing structures to organise an equivalent Committee. It is expected that the National Committees will organise activities on a national level, although ICA will offer significant advice and practical support, co-ordinating worldwide activities. For example, the ICA Working Group will support

IMY activities with basic information on ICA and its activities, on how ICA, its commissions and affiliate members can support mapping and atlas production, and on the way to improve the establishment of a geographic information infrastructure.

The national committee should contain representatives from all national mapping organisations and supporting organisations in geodesy, surveying and remote sensing, as well as education. The recommendation is that the National Committee will co-ordinate membership from the national topographic, geological and hydrographic mapping organisations; the commercial map/atlas production sector; the ICA liaison body within a nation; and some university/high school educational representative.

A major role of such a Committee will be to engage with the public: developing and coordinating events and inviting the public to these, and distributing information of all types to raise awareness, educate, encourage, and enlighten. One of the first duties, therefore, is to set up an informative web page which can act as the communications beacon for the Committee and its activities. The National Committee will have a good understanding of the national capacity and practice in cartography and mapping, and may also have the influence to engage with industrial partners, political decision-makers, and sponsors. An initial strategic planning day for the Committee is expected to be arranged sometime before the initial launch of IMY (i.e. sometime during 2014).

The National Committee has a crucial role to play in all the activities described later in this paper, so it is expected that it will be able to a) reactively maintain a schedule and calendar of events; b) pro-actively initiate events; c) publicise all events and ensure nation-wide participation; d) promote and advise upon possible national initiatives such as a web-based national atlas, and a national strategic plan for the creation and the dissemination of geographic information; e) translate material emanating from ICA to suit local needs; f) encourage participation in international events, such as the Barbara Petchenik Children's Map Competition (individual children and schools participation), and the International Map Exhibition at the 2015 International Cartographic Conference (map makers and mapping agencies participation); g) report back to the ICA IMY Working Group with information regarding the outcomes of IMY.

The inaugural launch of International Map Year will be 1 January 2015, with a formal high-profile event during the ICA International Cartographic Conference to be held in Rio de Janeiro in August 2015. It will continue until the end of 2016. However, preparatory activities and promotion will be ramped up from the start of the calendar year 2015. All cartographers are urged by the IMY Working Group to look out for, and volunteer to hold, mapping activities in their own country.

4. ACTIVITIES IN IMY

The text of the Bangkok resolution notes "*the need to promote geospatial information education and training for national governments, decision makers, the geospatial industry and users.*" It is expected that International Map Year will create opportunities to broaden knowledge about maps and other kinds of geospatial information among humankind as well as an awareness of the usefulness of maps and geographic information.

An ICA-managed central project web-site is being developed, which will offer suggestions including advice on advertising and promotion, events and activities, and methods of engagement with the wide range of politicians, civil servants, trade bodies, learned societies, educationalists, and members of the public for whom IMY will be of interest. Nominated national points of contact will be listed to allow any citizen to learn more about how to participate in the programme.

Through the web site, a set of promotional materials will be made available to allow the National Committees to put together fun and successful events for. ICA will grant organisations the copyright permission to use, copy, reproduce, and redistribute any or all of the IMY materials found on this web site in support of local IMY events and efforts. Thus, logos, fliers, brochures, posters, Powerpoint template etc. will be made available.

In addition to access to these resources, the web-site will, further, have a full Calendar of Events; reports of activities; submission methods for educative material, commentary and experiences; blogs and comments; contact details; diary notes; and event reports from around the world.

4.1 Events

In some countries, there are already established ‘map days’ or ‘GIS days’, either annual events or occasional celebrations, sometimes led by commercial companies, sometimes promoted by learned societies. Embracing such initiatives is expected to be a feature of IMY, and specific national conferences can also be used to widen the scope of the programme. Exhibitions of maps appear regularly in many countries, including travelling displays, library map displays, and also previews of a nation’s contributions to each biennial International Cartographic Conference (ICC). It is expected that these, along with map competitions including the international Barbara Petchenik Children’s Map Awards, will become part of IMY in 2015 and 2016. In all cases, a formal diary of events and schedule of activities will be maintained.

The IMY contains many actions directed to the general public and school children, and provided by geospatial professionals and local governments. The National Committee will support arrangements of local map days that will be held in municipalities, schools, universities and libraries.

Map days should be organised to get community members directly involved in a dedicated event which explores the power of maps. They can be organised at national, regional and/or local level, with co-ordinated scheduling if possible. Ideally, the community link would be through some organisation or local human activity which can involve mapping, such as agriculture, forestry, physical planning, housing, transport or natural resource exploitation. Municipalities could lead the organisation of such events, although local colleges and schools, museums, libraries, and other community groups should also be involved. It is suggested that the local prominence can be emphasised by concentrating on the area immediately nearby – perhaps supplying geospatial data of a village for participants to make their own map, or distributing free copies of a local paper map to encourage participants to explore their own environment. Local map days will inevitably interest local media, although for younger people, town newspapers are less important than using Facebook to find out about local events.

A local map day may contain:

Exhibition of recent national maps from the national mapping organisations and other systematic mapping agencies;

Demonstrations of map production and of the use of maps;

Local mapping programs for planning and maintenance of infrastructure (these may involve local services, such as fire-fighters and police addressing a series of planning, decision-making and operations effectively, efficiently, and in timely fashion using maps);

Exhibition of historical maps – mainly local ones;

Exhibition of Barbara Petchenik Children’s Map Competition entries;

Cartographic activities for children;

Short lecture program about the use of geospatial information;

Demonstrations of GPS, orienteering and geocaching;

Demonstrations of how to overlay old maps on new ones;

Map use exercises.

It is expected that exhibitions will be free-standing, but the overall ‘map day’ will benefit from the presence of leaders who can answer questions and respond to enquiries. Importantly such ‘volunteer facilitators’ will be able to offer demonstrations and short talks, and lead activities for children in particular. It is vitally important not to duplicate activity or engender ‘overload’ on the part of the citizen: ‘map days’ must fit into the schedule of existing or regularly planned activities. Companies such as ESRI, who already present the world GIS day, and organisations such as the Swedish Cartographic Society, which has presented regular Swedish Map Days, must be incorporated into the planning of the National Committee on IMY.

There are many other resources with which IMY can align in order to present a strong message about maps and mapping. The ICA Working Group will assist National Committees to access and use resources from organisations which already have significant experience in engaging with the general public: for example, the National Geographic Society has a rich set of teaching resources, many of them units which are already pitched to meet national educational standards; Esri offers Education Community Instructional Resources which can also be used in lesson plans and by individual students researching maps and mapping, and also presents an open Mapping Center giving advice on cartographic concepts and techniques.

4.2 Educational activities on IMY

There are a number of methods by which IMY can be used as a means of educating and raising awareness about maps and mapping. One of the main aims of IMY is to get more school children interested in cartography and geospatial studies for better understanding of our world, and this paper continues by describing three methods which are particularly appropriate for younger people.

4.2.1 Short Lecture Programmes

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4.2.2 Activities for Children

As a major focus for IMY activities, children and children's activities will be prominent during the project. The intentions are to raise awareness of maps and mapping by children: it is expected that the best way of doing this is to organize practical, 'hands-on', fun activities teaching children about the making and the use of maps.

Examples of such activities will be the development, demonstration and practical tasks of, for example, a web application to map the family. The 'Map of my Family' 'app' will allow children to compile their own family map with addresses and home circumstances of grandparents, siblings, uncles, cousins, etc. Such a resource could be easily incorporated into the school curriculum. A similar app, 'Map of my Home' is envisaged, which will persuade children to use an 'app' to compile a map of any themes in their city/village with gardens, points of interest, traffic, etc.

A long-standing educational activity administered by ICA over several decades has been the Barbara Petchenik Children's Map Competition, and under the IMY banner, national members of ICA will be encouraged to run this biennial competition to ensure a high quality exhibition of children's cartography at the ICC in August 2015. Creating a nationally-based exhibition in the first half of the year will form a useful part of the IMY portfolio of activities. As with the planning and development of all contemporary children's activities it will be advantageous to engage with broadcasters (e.g. TV channels) and with social media.

4.2.3 New book, *The World of Maps*

One of the most important educational resources to be delivered by the IMY Working Group of ICA, and intended to be used worldwide to raise awareness of maps and mapping in the context of IMY, is a specially prepared on-line book called *The World of Maps* to be published in July 2014. This specialist textbook on cartography and geographic information, is being published initially in English and Chinese, and will describe how maps are created and used, presenting the importance of accurate and retrievable geographic information, and providing possibilities to download such resources.

Written voluntarily by an international range of contributors, *The World of Maps* will be available on the ICA web-site for free download. It presents a set of individual chapters covering a variety of cartographic topics and issues, and forms a coherent introduction, reference volume and work-book for those who are interested in investigating the nature of contemporary mapping. It is hoped, and will be encouraged, that this material will be translated into many further languages for local usage around the world, by appropriate National Committees. The contributors include members of the Working Group (acknowledged at the end of this paper), along with notable cartographers from academia and sister organisations to ICA, from Europe and North America

The World of Maps includes individual chapters covering a variety of cartographic topics and issues that form a coherent introduction, reference volume and work-book for those who are interested in investigating the nature of contemporary mapping. The sections are listed below:

Introduction

Preface, President of ICA

Foreword, Author

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Executive Summary

Cartography

Use of Maps

Geographic Information

How to Make Maps

Map Design

Topographic maps

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Atlases

Geographical Names

Map Projections and Reference Systems

How to Use Maps

Map Use at the United Nations

Setting One's Course with a Nautical Chart

Maps for Orienteering and for Finding the Cache

How to Present Maps

Printing Maps

Web and Mobile Mapping

Geographic Information

Geographic Information Access and Availability

Volunteered Geographic Information

Education and Further Information

Education

Further Information

A primary purpose of the book is to encourage those in the educational sector, both teachers and high school/university students, to produce digital maps and increase their interest in further education in geomatics. It does this with a richly illustrated and engaging appearance, and a comprehensive coverage of all aspects of cartography. However, the material will be presented as separate chapters in a concise PDF format to allow for downloading over low band-width connections (which characterise many parts of the world).

Because the audience of the book is deliberately broad, there is assistance presented at the start in the form of a 'Study Guide' indicating some possible routes through the material for those who are (for example), young school children mainly interested in the graphical appearance of maps; decision makers wishing to concentrate on the politics and the data representation, rather than the technology of map production; 'interested amateurs' who are looking for ways to create their own maps quickly; and geospatial professionals seeking engagement and comparison with the wider international community of map makers.

The book has been produced under the editorship of Prof. Bengt Rystedt, a previous President of the International Cartographic Association, and will be a useful addition to the range of instruments employed by the ICA Commission on Education and Training to assess and monitor education in cartography

worldwide. In fact the penultimate chapter on Education is specifically directed towards classroom practice and procedures in the context of cartographic education and training. This chapter discusses the nature and scope of cartography (notably the United Nations definition); methods of education and training in the broad range of subject matter (from survey measurement to commercial retailing of geospatial data); contemporary developments in mapping activity; the response of educational institutions and programmes to such developments; the skills and requirements for a successful cartographer; the impact of GIS, and education using it; the nature and content of syllabi in geomatics education; the influence of 'Body of Knowledge' studies on the way in which cartography is taught; modes of study (from 'on-the-job' training to university research); the specific requirements of school, college, university and apprenticeship education; and informal education as individuals and through on-line courses. It is hoped that this chapter, in particular, can enthuse and encourage young people with interest and aptitude to seek out opportunities for continuing their study in cartography, wherever they may be in the world.

Of course, the book itself has been produced as a 'classroom-aide' and each chapter presents some exercises and suggestions for further study. With the varying levels of material in each chapter, it is hoped that there will be exercises appropriate for a number of age- and ability-groups. To some extent the range and depth of the book parallel the introductory courses in undergraduate degree programmes; but there is also sufficiently elementary material to appeal to much younger children.

Contemporary cartographic education is similarly noted for its variability in scope and detail. It is possible to study more cartography in primary school than on some undergraduate geography degree courses; but it is equally clear that the complex nature of map projections and the required knowledge of a GI scientist of geodatabase structures cover topics which are much more difficult to grasp. The intention of this book is to present, using its chapters and the study guide, a coherent, sufficiently detailed volume with attractive illustration and appropriate text for younger readers. Contemporary formal cartographic education has been in decline in many countries around the world, although it is thriving in several notable locations (e.g. Brazil, Turkey, China). It is hoped that this volume will fulfil its intention to introduce a whole new generation to cartography and its importance.

5. CONCLUSION

International Map Year (IMY) is a worldwide celebration of maps and their unique role in our world. Supported by the United Nations, IMY is an intensive international, interdisciplinary, scientific, and social strategy to focus on the importance of maps and geographic information in the world today. The most important legacies will be a new generation of cartographers and geographic information scientists, as well as an exceptional level of interest and participation from professionals, schoolchildren, the general public, and decision-makers, worldwide.

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