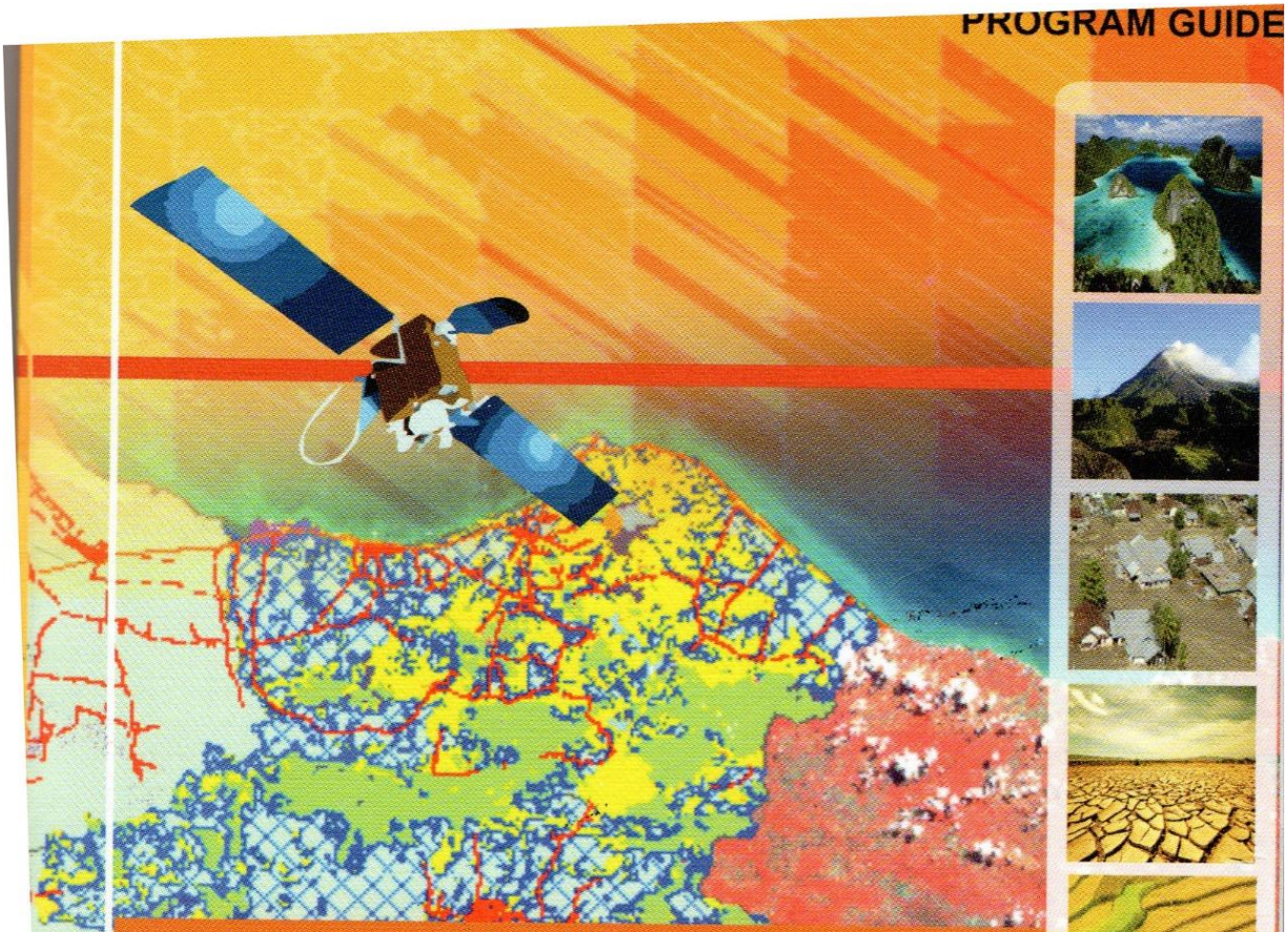
PROGRAM GUIDE



2016 ICOIRS

THE SECOND INTERNATIONAL CONFERENCE OF INDONESIAN SOCIETY FOR REMOTE SENSING

Remote Sensing for a better governance

Yogyakarta, INDONESIA
17-20 October 2016

PUSPICS
FACULTY OF GEOGRAPHY
UNIVERSITAS GADJAH MADA

MAPIN/ISRS
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CHAPTER

IKATAN GEOGRAF INDONESIA

BADAN INFORMASI

FOREWORD

On behalf of the local organizing committee, I would like to welcome you all to the 2nd International Conference of Indonesian Society for Remote Sensing (ICOIRS) to be organized from 17 to 20 October 2016 in Yogyakarta, Indonesia. This year's ICOIRS is also the 22nd of the Yearly Scientific Meeting of Indonesian Society for Remote Sensing (PIT MAPIN XXII). The main theme of the 2nd ICOIRS is "Remote Sensing for a Better Governance". As we all know that remote sensing has become a part of our daily life; from simply viewing the streets from mobile phones to selecting the evacuation route and shelters when a disaster strikes or monitoring the extend of forest fire. These examples corroborate the need to discuss the strategic position of remote sensing in today's national and global governance issues. Therefore, this conference aims to elaborate the advantages and challenges of remote sensing as an essential element in the current governance through sharing the knowledge among the participants. Over 200 papers and 300 participants are expected in this conference.

ICOIRS 2016 (PIT MAPIN XXII) would not have been possible without the many people who have worked with us in planning and organizing the technical program, exhibition, and social events. We thanks to MAPIN for its tremendous guidance and support on organizing the event; special thanks to the local organizing committee members who have all work extremely hard to make this conference happen.

Yogyakarta is one of the foremost cultural centers of Java. This region is located at the foot of the active Merapi volcano and borders with Indian Ocean at the south lowest part. The city itself has a special charm, which seldom fails to captivate the visitor. It is renowned as a center of education (*Kota Pelajar*), making it the right place for exchanging ideas, engaging discussions and enriching knowledge. While you're here, take time to have fun and find memories with the various attractions that Yogyakarta has to offer.

Finally, I would like to ask all of you to attend this exciting conference by presenting papers, discussing technical issues, exchanging ideas, and enjoying the city of Yogyakarta together. We are looking forward to see you all at ICOIRS 2016 in Yogyakarta.

Drs. Projo Danoedoro, M.Sc., Ph.D.
ICOIRS 2016 (PIT MAPIN XXII) Chairman

Tuesday, October 18th 2016 (Day 2)

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Learning Methods of Remote Sensing In the 2013 Curriculum of Secondary School

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Abstract. The new remote sensing material included in the subjects of geography in the curriculum of 1994. For geography teachers generation of 90s and over who in college do not get the material remote sensing, for teaching is a tough matter. Most teachers only give a theoretical matter, and do not carry out practical reasons in the lack of facilities and infrastructure of computer laboratories. Therefore, in this paper studies the importance about the method or manner of teaching remote sensing material in schools. The purpose of this paper is 1) to explain the position of remote sensing material in the study of geography, 2) analyze the Geography Curriculum 2013 Subjects related to remote sensing material, 3) describes a method of teaching remote sensing material in schools. The method used in this paper is a descriptive analytical study supported by the literature. The conclusion of this paper that the position of remote sensing in the study of geography is a method or a way to obtain spatial data earth's surface. In the 2013 curriculum remote sensing material has been applied to the study of land use and transportation. Remote sensing methods of teaching must go through a practicum, which starts from the introduction of the theory of remote sensing, data extraction phase of remote sensing imagery to produce maps, both visually and digitally, field surveys, interpretation of test accuracy, and improved maps.

Keywords: 2013 Curriculum, Secondary School, Learning Methods, Remote Sensing.

1. Introduction

The new remote sensing material included in the subjects geography curriculum in Indonesia since 1994. For geography teachers generation of 90s and over who never get a course of remote sensing, remote sensing for teaching is a difficulty. It can be seen on every visit to the school or the teacher training activities, they always complain the difficulty for teaching remote sensing. Most teachers just give the material form of the theory, they also complained of the lack of facilities and infrastructure of computer laboratories for teaching remote sensing.

Whereas remote sensing material is very important in the study of geography is as one method to obtain data on the earth's surface that can save time, money and energy. The fact today is many teachers who aren't able to distinguish the position of remote sensing and GIS in the study of geography. Geographers in Indonesia views remote sensing are in the same field of study and have a very similar approach. It is though the remote sensing has fundamental differences in the study of geography [1].

Learning remote sensing must be done effectively and efficiently. Effective learning is incompatibility between the lessons and learning objectives formulated in core competencies (KI) and basic competence (KD) in the curriculum. The study is the accuracy of the election efficient learning

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method in accordance with the characteristics of the material being taught. So that learning can be done effectively and efficiently then the teacher must improve the competence, either deepening mastery of material and teaching methods. Therefore, the need for innovative learning methods for Remote Sensing is essential.

The purpose of the writing is 1) to explain the position of the material in the field of Geography Remote Sensing, 2) analyze the Geography Curriculum 2013 Subjects relating to the material Remote Sensing, 3) describes a method of remote sensing of learning materials in schools. The method in this paper is a descriptive analytical study was supported by the literature.

2. Study of Remote Sensing in Geography

Position remote sensing in the study of geography is as a method to solve the problems that are spatial. Remote sensing plays a role in obtaining the data using the vehicle is not in direct contact with the object. Results of data from remote sensing along with other data sources such as from secondary data and field survey data were processed through GIS analysis to produce new information in decision making.

The position of remote sensing in the study of geography is merely a tool (tools) [1]. At the end of the 1980s along Remote Sensing Geographic Information Systems entered the new field, the geographic information science. In orthodox geography, the position of remote sensing techniques to get in on a clump of geography, while the integrated geography get in on the analysis of spatial approaches (spatial). The core of the spatial analysis is one theory of spatial information. Remote sensing in the study of geography is used to analyze the data objects depicted in the image will be displayed in the form of a map. Remote sensing approaches in the form of spatial, spectral, and temporal used in analyzing geographic phenomena, such as the distribution of socio-economic conditions of urban society, and other types of land use.

Furthermore remote sensing in the study of geography takes a holistic approach is to map the object in the earth's surface through units (unit) mapping analysis, for example, the classification of the landscape, land use, and land units settlements. In the analysis of spatial problem solving, remote sensing always be integrated so that a more thorough study [1].

3. Remote Sensing Materials in the 2013 Curriculum of Secondary School

Remote sensing material has been included in the subjects geography curriculum since 1994. In 2013 the curriculum load sensing material core competencies (KI), basic competence (KD), and the subject matter. The core competence related to the ability to live and practice the religion professed (spiritual attitude), develop behavior (social attitudes), understand and apply knowledge (cognitive), and develop skills (psychomotor).

Basic competence is a translation of core competencies. Spiritual attitudes in remote sensing material must be associated with an increased sense of faith learners, for example, grateful for the gift of God for the ability of the human brain in a remote sensing technique that can make satellite in order to produce data of the earth surface is fast and accurate. This is because the limited human physical capability to map areas that are difficult to reach in order to save time, cost, and energy.

Competence social attitudes or behavior on learning remote sensing, among others capable of cooperation between learners, respect the opinions of others from starting the process of image interpretation to presentation of results interpretation. In addition, the material of remote sensing in the 2013 curriculum should develop the attitude of learners among others honest, disciplined, responsible, caring, and polite.

Competence of knowledge on learning material remote sensing seen from the material on the syllabus, which is the subject matter in the form of remote sensing for land use and transportation, with sub subject the concept of remote sensing (type, aspect of interpretation, the benefits and advantages of remote sensing), remote sensing for land use, remote sensing for transport networks, and governance and remote sensing institutes in Indonesia [2].

Competency skills in remote sensing materials for learners to create land use maps of visual and digital interpretation of remote sensing imagery or aerial photography.

n the 2013 curriculum, learning remote sensing should use the scientific approach which consists of 5M: to observe, ask, collect data, associate and communicate.

In remote sensing material, the skill can be observed land use observe objects depicted on aerial photographs or digital images. Skills ask such learners can ask the seven elements of visual interpretation on aerial photographs or digital images of high spatial resolution. Skills to collect data in the form of learners can delineate the boundaries of land use on aerial photographs or remote sensing image based on the elements of interpretation. Skills can associate the form of an analysis distribution of land uses associated with the transport network. As for the skills to communicate in the form of presenting the results of visual interpretation of the data of land which is used in relation to the transport network.

Remote sensing material is given in schools to create awareness of students about the Earth and its environment by introducing methods of observation from space [3]. The education system should open the students' understanding of the importance of remote sensing and satellite image processing program. Then create student interest in scientific innovation to create a system tool receiver remote sensing image data. The hope is students will continue to develop space technology for multiple uses remote sensing satellites in the future.

4. Materials and Learning Methods of Remote Sensing

Learning is a teaching and learning activity so that learners gain experience, knowledge and competence appropriate to the learning objectives. If learners do not acquire new competencies is that of the learning process is not optimal and should see the issues contained in the learning component.

Learning component consists of teachers, students, teaching methods, teaching materials, media and learning tools, and evaluation tools. Teachers have a very important role in learning because as a driver of the learning process. Professional teachers are teachers who have competence in planning the learning process (RPP), preparing teaching materials, preparing instructional media, teaching methods, and make the evaluation. Therefore, teachers must be competent at each stage of learning, which includes planning, learning activities, and assessment (evaluation / reflection) [4].

The learning method is an effective way used by teachers in presenting the content of learning to achieve a certain competence in accordance with the purpose of learning. There are other types of learning methods, there are lectures, question and answer, discussion, demonstration, practical learning, field trips, projects, and tutorials [5].

Lecture method has the characteristics of teacher orally delivered material. This method is suitable to explain the cognitive abilities such as learning materials such as definitions and concepts. Question and answer method of conveying material through a question and answer both between teacher-student and student-student. A fundamental question posed covers 5 WH (what, why, when, where, who, how). Excess methods become active student in asking questions, thinking critically about the subject matter.

Discussion method has the characteristics of information or knowledge sharing between students, students actively discuss, and teacher as facilitators are on a theme or issue to be discussed. Methods of demonstration or demonstration, characterized displays detailed steps of a process. This method will give a more concrete understanding of the process so students easily master certain skills.

Practical learning methods, typically to acquire certain skills. The location can be in the laboratory and in the field. Practice in the laboratory to train basic competence with some simulations and in the field to apply the basic competence of the laboratory directly in the field. As for the field trips, the characteristics of students take to the field to observe the state of the object or the real issues on the ground.

Method is an integrated learning project on specific competencies to produce a specific product or work. Competence, for example in the form of a map-making skills, knowledge of the mapped region.

The method tutorial, is characterized learners to learn independently through modules. Teachers provide guidance if learners have difficulty understanding and applying these modules.

Geography learning method consists of the method in the room (indoor study) and methods of outdoor (outdoor study). Methods in the room include a lecture, question and answer, discussion, and sociodramas. While outdoors duties and trips [6]. Each method has advantages and disadvantages of learning, so the selection of methods should consider the basic competencies, learning objectives, instructional material characteristics, the characteristics of the student and teacher competence in using the model [4].

Generally appropriate learning methods for remote sensing material that is through the method of practicum (practice). Before using practical methods, remote sensing teaching material must be preceded by a lecture, question and answer, discussion, and demonstration. The detailed study remote sensing should use methods that vary depending on the learning objectives, learning materials and characteristics of learners.

The learning method of remote sensing based material, namely 1) the concept of remote sensing should use the lecture method, question and answer, and discussion. 2) The material interpretation, the benefits and advantages of remote sensing by using question and answer, discussion, demonstration, and practice. 3) The material of remote sensing for land usage can be applied using question and answer, discussion, tutorial, practice, field trips and projects. 4) The material of remote sensing to the transport network, can use the method of discussion, tutorial, practice, field trips and projects. 5) The material governance and remote sensing institutions in Indonesia with lecture, question and answer, discussion, field trips, and tasks.

Methods of laboratory work in remote sensing material, in the laboratory, among others interpreting aerial photographs or imagery visually delineate the boundaries of land use, and make the land use map. Practicum in that field surveys to match the suitability of land use between the interpretation and real situation in the field.

Practical method of remote sensing is done by training and mastery of the operating modules for a wide range of remote sensing applications [3]. Even students are expected to operate a system of remote sensing data receiving in school. Furthermore, the lab system that interactive learning remote sensing through online modules and utilize internet facilities, can enhance the activity and enthusiasm of the students so as to provide a pleasant experience for the students [7].

Teaching material not only in the form of remote sensing theory and practical work in the computer lab, but students must be brought to experiment in the field. Students are invited to obtain data on the earth's surface directly in the field through the camera. One model of learning for the benefit of students is Inquiry Based Learning. Through this model, students do a hypothesis about a theory and predict an event, students will focus on learning, develop the capabilities and skills to perform the investigation of an event [8].

5. Conclusion and Recommendation

The conclusion of this paper that 1) the position of remote sensing in the study of geography is a method or a way to obtain spatial data earth's surface, 2) In the curriculum 2013 matter remote sensing has been applied to the study of land use and transport, 3) Methods of teaching remote sensing to go through a practicum , which starts from the introduction of the theory of remote sensing, phase data extraction from remote sensing imagery in the form of image interpretation both visual and digital, surveying the field to check the situation on the ground, accuracy test to see correspondence between the interpretation and the results of field surveys, repair information on a map and displays a map corresponding cartographic rules.

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