Hello friends, I'm Dr. Sanjay Gaikwad, Assistant Professor, Department of Geography, Parvatibai Chowgule College of Arts and Science (Autonomous), Margao, Goa, is here to discuss with you one more topic of geospatial technologies in geography.

The topic I'm going to discuss with you is related to the photogrammetric instruments. That is, pocket stereoscope and mirror stereoscope.

In this session will be discussing the 3D vision and how the spectroscope is used in remote sensing. We will discuss the parts and functions of various telescope parts and functions of pocket stereoscopes and will have the conclusion of it.

Students will be able to understand at the end of this model.

How the stereoscopic applications are used in remote sensing will also know the parts and functions of the both instruments.you will be able to handle this instrument independently after going through this session.

You will be able to take readings from the photographs using the instruments. Readings like length, height, depth, extension and various geographical phenomena that you can deal with.

The first question comes in mind that how the stereoscope is used in a remote sensing so will have the first clarification of how this telescope is used.

If you have normal or corrected vision of both eyes, you will be able to see the 3 Dimensional view. The world is stereoscopic, which means you can see all the details and the dimension of the scene. The very important part of our observation is the depth perception. This depth perception is the visual ability to perceive the world in the three dimensional. And the distance of an object, since one can easily understand the spacing between the observer and the object that they are observing. The intersection of these two optical axes at the object from is called a paralytic angle.

Her two eyes and the eye basis approximately 4 fingers OK, so two eyes are separated and these two eyes at a time are focusing on one object. So this ability to focus and have a clear view is called laser Paralytic angle, you have a correct paralytic angle so one can see the three dimensional view. This 3 dimensional perception is a product of two separate 2 dimensional images. Means overlap ties. also getting one image of two dimensional righties also getting one image of two dimensional. And when you fuse it OK mind is giving use or the brain user 3 dimensional perception.

So a stereoscope is a device constructed to force each one to look essentially straight down with an angle along the line that is parallel to or near or so. That means other instrument that you are going to use like Lens, Telescope, orchestra scope or business telescope is likely to split your normal vision an force you to look straight or parallel in the stereoscopic weaving the lens of site do not coverage as they do in a normal living.

So in this case it will be always separated by the instrument, so that will give you the straight scoop equation. So you can see the normal photograph also having 3 dimensional effect. So this is an example of a lens Telescope. You can see the image of the lens stereoscope exactly kept on their photographs.

So pocket Stereoscopes is also the alternative name. Further Lense Stereoscope and mirror stereoscope is used as a lab instrument as well as the field instrument.

It is very simple as the two folded links the two lengths having a high base of about 5.72 and it is necessary to have overlapping photographs and then once you have the enough overlaps then the vision will be clear OK.

So the advantage of this instrument is it is very compact. It has a two time magnification capacity and it is suitable for the fields means it one can easily carry it in the pocket.

Disadvantage of this is the photographic positioning. You need to move around the edges so you cannot have the big stereoscopic view OK and because of this size only one cannot see the entire model at the time.

Exactly opposite of this, we have the mirror stereoscopes functions are little bit easy to spot the

where we have lenses for the viewing. In between there is a small mirror, then a large mirror. OK, this from photo 1/2 photo in sketch you can see photo one and photo are these are the two mirrors and two photographs kept apart from each other in the earlier one it was placed exactly one over the other, with the 20-20% of the overlapping.

In this case two photographs are separate and the photo one and photo two are arranged in front of the mirror which is placed at a 45 degree angle. Again the one more small mirror is placed in front of that. Again, with the 45 degree angle and then the rays passing through the lens and that have been observed by the eyes.

OK, so this is usually the function of the mirror scope that how the images captured means. Images taken to the ice and then this is. This will post the views to be separate. OK so this separation is maintained by the small mirrors and in between a prism is also used in some of the stereoscopes. So this is a photo of a mirror stereoscope and how it is happening in the photographs. Then there is a large mirror. Then there is a small mirror and then you are observing it. So this is what we call the optical distance. The distance between all steps, eyes, mirror, mirror and photographs.OK this mirror share scope also has a magnifying glasses so it can go up to 10 X zoom level. OK so.Under the two mirrors, we can have a two different still photographs and approximately 60 to 80% of overlapping can be managed under this, and one can hear the Birds Eye view or a panoramic view under this.

The advantage of mirror stereoscope is, it allows the entire stereoscopic model to be viewed at one time.

It is also used as a very effective because of the auxiliary lens that are used in binocular attachment and that can exaggerate lower magnification capacity up to two to four times.

Disadvantages can be noted like it's readily. Means it is not very possible to be carried out on the field because you need to and take the entire set up with the other. Edit additional accessories. The magnification more than four x will have the grain effect because of the emulsion used on the photographs and one has to take care of these mirrors because they are likely to be Degraded because of the weather conditions.

OK so. Along with the photographs and the instruments, one has to understand how to arrange the photographs and other stereoscopes so if it deserves a pocket stereoscope then we have to have the two

photographs where the consecutive for principle points are matching in the line. So I have arranged to take photographs.OK, SO 2 aerial photographs taken one after one means these are the consecutive photographs and there are the principle points of the both photographs in one line. The first it is needed to verify the consecutive photographs are that then the principle points are also the conservative principle point of the second photograph, and you can fix away the error. The tape to stabilize the photographs and using the transparency or a lesser protection cover you can do the tracing using this. OK, so this is how one can arrange the parallax bar mirror stereoscopes and they will photograph together. In conclusion,

We can say these stereoscopes are used for depth perception for photogrammetry measurement and both have advantages and disadvantages, OK, and unless we have the stereoscopic vision, our sensing of aerial photographs will be incomplete. OK so if. We can split our vision and we can see the three dimensions.

This is used for the planimetric measurements; aerial photographs along with stereoscopes will be the added advantage for the interpretation of the various geographical phenomenous. There are some references for you.

Thank you.