



Learning Material

West Africa – crossing the Earth's largest desert

Grade 7-9

Exercises

Exercise Sheet 1: Earth Observation from the ISS

Exercise

1. The ISS (International Space Station) is the largest artificial object in the orbit. How many cameras are installed at the ISS which record images of the earth 24 hours a day?

2. The ISS rotates the earth several times a day.

a) How many rotations is it accomplishing each day?

b) How long does it take for one rotation?

3. You can see the ISS from the earth but it is far away from here. Even though pictures can give a good image of what is happening on our blue planet. But if you zoom in you can also see the single pixels.

a) What is the flight altitude of the ISS?

b) What is the size of one pixel within an image taken from the ISS?

Exercise Sheet 2: Land Surfaces and Climatic Zones

Exercise

1. Which land cover can you spot in the image?

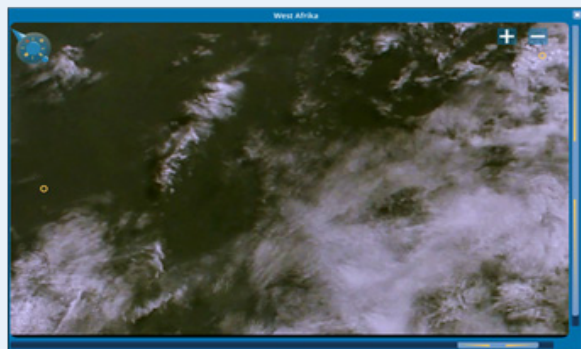
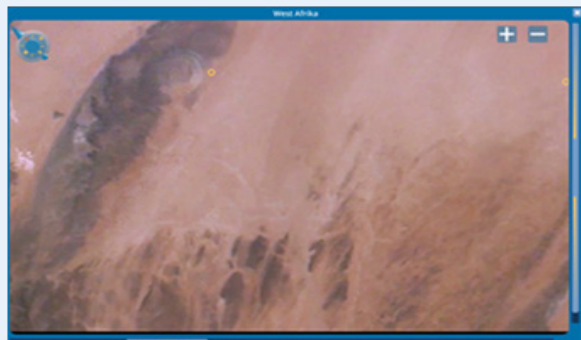
Go from coast to the interior and list at least four different land covers which you will spot along.

- 1.
- 2.
- 3.
- 4.

2. The two images on the left show two extracts of the flyover. The overview map on the right identifies the location of both images.

a) To which climatic zones are the pictures assigned to?

b) What do you recognize when you look at the cloud cover of both images on the left. Why are there more clouds on the picture at the bottom than on the one on top?



Sheet 3: The African Savanna

Exercise

1. The information points give further information on different regions and phenomena which are depicted in the ISS-panorama. Have a look at the location of the points and read through the information of the African savanna. Use this information and the one you get in class and describe the savanna ecosystem and how you can see it in the image.

2. List the three savanna types:

Sheet 4: The Classification

Exercise

1. Use the tool and make a classification. Choose the area which is depicted right at the beginning when you open the tool (place the slider to the very left). Create at least three surfaces: water, clouds and desert. Also check the instructions below the tool. You can display or hide them to get the instructions on how to make your map.

a) Create training samples for all three surfaces.

b) Name them and assign different colors to them.

c) Save the map.

2. Test the classification with different training areas and compare them. Again, choose the same areas as for exercise 1 (place slider to the very left).

a) Check the area of the Sahara/desert.

b) For which surfaces you can spot the most mistakes?