Hello, students, in this session we are

going to learn about physical geology,

which is a semester two paper

with GEG 102 code.

In this module

I will be covering the topic on Hypsographic

Curve and morphological

features of the ocean floor.

So by the end of this lecture, we will

be able to understand what is Hypsographic.

Curve and different morphological

features of the ocean floor.

So what is a Hypsographic curve?

Hypsographic curve

shows distribution of

the land above and below the mean sea level.

If you see the figure over here, the Y-axis,

we have the elevation in kilometers.

Now this elevation can be seen about the

mean sea level and below the mean sea level.

The bar represents the percentage of the

earth surface that is the mountains at

the highest and the trench the deepest.

On the ocean profile side,

Continental margin accounts for 15%

while the Abyssal Plains in the mid

ocean ridge accounts for 50%.

So basically, it will help in

understanding the distribution of land.

On the surface and below the

the surface that is on the ocean

floor and the continental side.

So next is the morphological

features of the ocean floor.

The ocean profile begins with the shore.

As you can see in this picture,

which is an irregular boundary where

the surface of the continent descends,

first to a sea-level

fluctuation and the ocean.

Floor profile starts.

The following sequence of the

bottom features are typically seen.

The first one is the continental shelf.

As you can see in the figure,

next is the continental slope.

Then comes the continental

rise and the abyssal plain.

So let us learn each of them in detail.

So the first one is the continental shelf.

The flat wide margin which starts after

the shoreline is a continental shelf.

As you can see it here,

the continental shelf is an area

of relatively shallow depth,

usually less than a few 100 feet

deep that surrounds the land.

It is an arrow on nearly

non-existent in some places,

in others, it extends up to 72-1000 kilometers.

The waters along with the continental

shelf are usually productive,

consisting of sufficient light

and nutrients from upwelling,

and run off an average width of

the continental shelf is around

70 kilometers and has a slope

the angle of 0.1 degrees or 1.7 meters.

Per kilometer.

Next to Continental Shelf is a slope

The sudden change in the slope of a

the continental shelf is called a shelf break,

so the place where the continental

shelf ends is called as a shelf break.

After the shelf break is the start of a

continental slope beyond the shelf break,

the slope or the continental

slope of the ocean floor begins.

The slope is relatively steep with

a slope angle of four degrees and can

go up to 25 degrees the steep slope.

Is known to consist of submarine

canyons and gullies.

The continental slope on average is

about 16 kilometers wide and descents

to a depth of about 2.4 kilometers.

After the continental slope, you will see

here that the continental rise starts.

So what is a continental rise?

continental

rise at the base of a continental slope

The steep gradient of the slope

decreases to 1 degree or less.

Continuing into an abyssal hill or a plane,

this gentle slope is known

as the continental rise.

So this is basically a decrease in

the slope from a continental slope,

which is having a higher slope.

To a gradual slope which is

called as a continental rise,

the continental rise is composed

of fine-grain continental sediments

that is silt and clay which are

brought by the submarine canyons

and deposited in this region.

This mainly happens because of

the change in the slope angle.

The next feature is the Abyssal plain.

This is very important and interesting

feature

Continuing further down from

The steep plane of the continental slope,

an arise to a nearly elevated

surface of the ocean floor is

called as the abyssal plains.

They mainly occur at a depth

below 4 kilometers and

can go up to 1000 kilometers abyssal plain.

Our largest habitat on earth,

sunlight does not penetrate to this region.

Making this. Deep dark ecosystem,

less productive than those

along the continental shelf.

But despite their name,

these plains are not uniformly flats.

They are interrupted by features such

as hills, valleys, and seamount. So.

What is an abyssal hill and advisor?

Hill is a small hill on the ocean floor.

If the if this hill is having an

height of more than one kilometer,

then we call it a seamount,

and if a seamount is having a flat bottom.

I mean flat top,

then it is called a guyot or a table mount,

so these are the three important features

that occurs on the abyssal plains.

Next is the mid-ocean ridge.

So beyond the abyssal plains,

which may be several 100 kilometers wide,

the ocean flow begins to descend

again into a gentler slope.

These other flanks of the mid-ocean ridge.

The mid-oceanic Ridge are long

undersea mountain chains that usually

extends down the middle of the ocean.

To the mid-ocean ridge, there is

something called a Rift Valley,

which is also a feature that is associated

with a divergent plate boundary.

Now this is the portion of the

lithosphere which moves away from

each other along with the canter of

the mid-ocean ridge there is a

deep V-shaped Valley notch

which is called a Rift Valley.

From this valley,

the new oceanic crust is constantly being

extruded to the surface of the ocean floor,

so it is the Rift Valley that is

resulting in the new oceanic lithosphere.

The next one is the oceanic trench.

The oceanic trench are the steep depressions

in the deepest part of the ocean,

the Marina Trench,

which is an example of an oceanic trench,

is about 36,201 feet,

so this is the deepest portion

of the oceanic lithosphere,

which is called an oceanic trench.

So to add up to the summary,

in this module, we try to see what is

hypsographic curve

So what did we study here is that we

try to understand how the distribution

of land is put up on the surface.

And on the oceanic floor so

hypsographic curve will show us

the amount of earth surface at

various elevations and depths.

Also, we try to see what are the

morphological features of the ocean

floor that is the continental shelf,

the continental slope,

the continental rise and the abyssal plain.

Then we studied what is an abyssal.

Hill seamount.

Guyots and table mount.

Then we try to see what

is a mid-ocean ridge

And Oceanic trench,

so these are some of the important

morphological features that

occurs on the ocean floor.

References and thank you.