Hello students. This is BSc

Third Year paper in geology Semester

6 course code GC110 course

title Indian Stratigraphy

module name,

tertiary formations of India, Assam

Outline of this topic is tertiary

formation of India area Assam

by

end of this module students will be able to understand the tertiary formations of Assam with respect to stratigraphy and Geosynclinal facies and shelf facies deposit that took place during the tertiary. So let us start with this module. Introduction tertiary rocks are well exposed or well developed in eastern and southeastern Assam. However, they show large variation in the succession in different areas.

The tertiary succession is seen as Geo synclinal facies and Shelf facies. And in Geosynclinal facies: it mainly includes the Surma Valley and the upper Assam, so tertiary rocks for the better understanding is mainly divided into 2. That is the geosyncline facies Shelf facies So one is in the form of a syncline that is a geosyncline and the second one is in the shelf environment and in the geosyncline area or the facies We have the two types, that is the Surma Valley and the Upper Assam. This you will be able to understand better when we will move to the stratigraphic part. So this is the stratigraphy of the tertiary formation of Assam. Here you will see that geosyncline facies are mainly divided into 2.

That is the Surma Valley and the Upper Assam, whereas the shelf facies are completely different. However, they have a similar age to that of them. Geo Synclinal facies is. So let us see in details the stratigraphy succession of Assam. The Assam or the tertiary formation of Assam is resting upon the Cretaceous rock, which forms the basement for this group. Now above the Cretaceous basement, there is a distinct unconformity that is seen in the Geo Synclinal facies as well as in the shelf facies Now, based on age, the tertiary formation of Assam is mainly divided into sub formations. That is the Eocene and we have the Disang series Oligocene

We have the Barail series.

Miocene is divided into 2.

That is the tipam series and

the Surma series,

whereas the Mio Pliocene is.

single that is the do

Dupitila series and the Pleistocene

we have the Dihing series.

Now Dihing series is the topmost

series in the tertiary formation of Assam.

Now,

based on this series, the.

In the geosyncline are facies

and the shelf facies

The rock types vary,

so is the formation different at the.

All three locations.

So let us see in the Geo synclinal

facies what is

the tertiary formations of Assam

In GeoSynclinal facies the Surma valley

the eocene age we have the Disang which has a thickness of about 1500 meters. In the Oligocene. The well in the Surma Valley is divided into basically three formations. That is the Laisong the Jenam and the Renji formation. Now these three have a different thickness of 2400 to thousand meters. Above this formation there is a distinct unconformity. Now Surma series is further divided into two types. That is the Bhuban of 4000 meters thick. And the Bokabil that is 1500 meters thick. Whereas the tipam series is divided into 2. That is the Tipam Sandstone and the Girujan Clay Now above the tipam again, there is an unconformity.

Above which lies the do Dupitila

That is 3600 meters.

Above the Dupitila there is again

an unconformity and the Dihing

series is seen of 400 meters.

So similarly in the upper Assam

the rock types are varying,

so we will see what are the

different formations of tertiary

rocks in the upper Assam region.

In the Eocene,

that is the Disang series we have.

The Disang formation of 3000 meters.

In the Barail of Upper Assam

is divided into 3 sub formation.

That is the Naogaon,

the Baragoloi and the Tikak Parbat

Now here the Baragoloi is 3300

meters thick, which is the thicker.

Formation in the Barail

Now this again lies above is an unconformity,

then the Surma.

Is a again seen as Surma formation of 900 meters and the tipam is seen as a tipam sandstone and the Girujan Clay of 1800 meters. Above the unconformity we have the. Namsang Formation, which belongs to the Dupitila series and the Dihing formation of 400 meters following the Dihing series. So these are the sub formations of Upper Assam in the geo Synclinal facies Whereas in the shelf facies, the formations are slightly different. In the Disang series, we have three formations that is the Therria the Sylhet Limestone and the Kopili formation of 500 meters thickness. Above this, there is Jaintia Series Now Jaintia Series series is only seen in

the shelf region and is not well prominent in the Geo Synclinal facies Above this we have the Barail of 1200 meters. Surma is again seen as Surma in the shelf facies. Whereas the tipam s seen again as two. That is, the tipam sandstone and the Girujan Clay Now the Dupitila series is seen as Namsang formation of 600 meters thickness. Whereas the Dihing series is seen as a Dhekiajuli 1800 meters thick formation. So this is how the rock types of the tertiary formation of Assam is divided into the geosyncline along the shelf facies. In Upper Assam that is, the Disang Series represents part of the Upper Cretaceous and the

lower and the middle you seen The Jaintia Series of southern Assam appear to cover the great part of Eocene including Paleocene the succeeding Barail Series is of use in an Oligocene age and contains coal seams and Petroliferous beds. There is a widespread unconformity in the Oligocene between the Barails and the Surma Series The minor unconformity is known between the Tipam Series and the Dupitila Series, while the latter is generally separated from the Dihings by another unconformity in the Pliocene. the tipams are Miocene while the Dihings are of Pliocene age, probably extending into the Pleistocene and resembling the Upper Siwaliks. Formation

in the summary part.

The important thing about the

tertiary rocks of Assam. Is the.

Major series that is Disang

Barail, Surma, Tipam, Dupitila, Dihing

We need to also.

Put enough importance in the Geo

synclinal facies and the shelf facies.

That is the Surma Valley and

the Upper Assam and the shelf.

The different formations that

appear in the shelf facies

so this is the overall study.

stratigraphic data for this tertiary of Assam.

For the references you can refer geology

of India by Ramakrishna and R.Vaidyanadan,

2010 geology of India by

D. N. Wadia, 1983 published the Geology

of India for students by again

D. N. Wadia, that is published in 2019 and

Geology of India and Burma by Ms

Krishnan that is 6th edition 1982.

Thank you.