Overview of the bay of bengal biology essay

Science, Geology

The Bay of Bengal is a triangular molded bay in the northeast portion of the Indian Ocean. The bay is 2, 172, 000km2 and is feed by a figure of big rivers including the Padma (a distributer from the Ganges) . Sea temperature and salt alteration dramatically across this country. The ground for this alteration will be discus in this study. Comparisons will be made between the Bay of Bengal and the Arabian Sea. The Arabian Sea is a part of the Indian Ocean ; it excessively is fed by a figure of rivers and is attached to the Red Sea, a saltwater recess which undergoes a huge sum of vaporization, it is hence the most saline organic structure of H2O in the universe. The factors which cause difference in temperature and salt between the Bay of Bengal and the Arabian Sea will besides be discussed.

Variations in O values for the Bay of Bengal

Datas for the Bay of BengalFigure 2 shows a alteration in O values from the northern terminal of the Bay of Bengal to the unfastened Indian Ocean.

The values increase dramatically from, -3. 4ppm to -2. 6ppm in the unfastened ocean. Figure 3 shows an addition in O values form -3. 6ppm in the Northern portion of the bay, to -1.

7 in the unfastened Indian Ocean close the equator. The latitude values seen in Figure 3 can be compared to the aerial exposure in Figure 1 demoing longitude and latitude. Interpretation for the bay of BengalO is a step of the ration of stable isotopes. The information from Foraminifera and ice nucleuss is used as a placeholder for temperature. Foraminifera have Ca rich shells, (CaCO3) the ratio of O to O shows the temperature of sea H2O at the clip of hardening. These values can change somewhat due to salt. Rainwater is

enriched in O ; it is a lighter molecule and is discriminatory evaporated from saltwater.

Atmospheric vapor is hence enriched in O, where as ocean surface becomes depleted particularly in costal parts. The Bay of Bengal has lower O values than in the unfastened ocean. This can non be due to hapless circulation, as in this instance the H2O would go enriched in this molecule. The rivers which flow into the bay are doing a depletion of O close the river oral cavity. Further off, towards the unfastened ocean, the river is doing less of an consequence and therefore O is increased.

Datas for the Arabian SeaFigure 4: A Google Earth map demoing longitude and latitude lines for the Arabian Sea. Beginning: Google EarthFigure 5: A graph to demo O values vs latitude for the Arabian Sea. Figure 5 shows that the concentration of O decreases towards the equator from the Arabian Sea into the Indian Ocean.

Interpretation for the Arabian SeaThe Arabian Sea has a higher concentration of O near to the seashore compared to the Bay of Bengal. This can be seen in Figure 5. The ground for this is the greater circulation of H2O in the unfastened ocean. The Red Sea besides flows into the Arabian Sea.

The Red sea is a H2O recess which undergoes big sums of vaporization. It is the most saline organic structure of H2O in the universe. This could besides be doing the seashore to be more enriched in O.

Like the Bay of Bengal several rivers flow into the Arabian Sea conveying a fresh H2O input rich in O.

The consequence of salt and temperature on O values

DatasFigure 6: A graph to demo salt vs latitude for the Bay of BengalFigure 7: A graph to demo temperature vs latitude for the Bay of BengalFigure 6 shows that in the Bay of Bengal salt additions from the Coast into the unfastened Indian Ocean. Figure 7 shows temperature compared to latitude in the Bay of Bengal. The graph shows that temperature additions from the equator into the bay. This form nevertheless is non seen at Longitude 95. 5 where the temperature decreases. Figure 8: A graph to demo salt vs latitude for the Arabian Sea.

Figure 9: A graph to demo temperature vs latitude for the Arabian SeaFigure 8 shows that in the Arabian Sea salt additions with latitude. The exclusion being at longitude 75. 5, here the salt decreased closer to the seashore. Figure 9 shows temperature compared to latitude in the Arabian Sea. With increasing latitude due norths off from the equator temperature decreased.

Figure 10: Left is a diagram which represents salt in the Bay of Bengal and the Arabian Sea. Right is a diagram which represents surface temperature of the two countries. Figure 10 shows a high salt of over 35. 5pps in the Arabian Sea compared to the Indian Ocean. The Bay of Bengal has a low salt of around 33. 5pps which is lower than the Indian Ocean. The one-year temperature diagram to the right shows an overall stable temperature of 28. 5oC in the Bay of Bengal, Arabian Sea and the Indian Ocean.

InterpretationSalinity depends upon how much H2O there is in the oceans, instead than salt (Wolfgang, Session 13) . The salt of the oceans remains at a reasonably changeless degree of around 35 % . This can change somewhat

due to locally big inputs of fresh Waterss via rivers and by big sum of vaporization. O and salt addition proportionately. This is the consequence of vaporization of O in shoal seas where circulation is less effectual. This can be seen for the Arabian Sea in Figure 5 and 8. Figure 3 and 6 for the salt and O of the Bay of Bengal shows an opposite tendency to that of the Arabian Sea. This may be due to a big sum of fresh H2O come ining the bay from rivers.

Effective circulation of H2O may besides do such a tendency. O and salt strongly correlate as they are both effected by vaporization, fresh H2O input and circulation. Sea surface temperature remains reasonably changeless over an country as a consequence of the slow rate of alteration.

Figure 10 shows a stable one-year temperature of 28. 5oC for the Bay of Bengal, Arabian Sea and Indian Ocean. Figure 7 and 9 are graphs to demo temperatures in these countries. The temperature appears to increase inland in the Bay of Bengal with the opposite consequence in the Arabian Sea. This fluctuation may be due to propinquity to land and warm tidal currents.

O values as consequence of temperature across the Bay of Bengal

DatasT (& A ; deg ; C) = 17.

04 – 4. 34 ten (Otest – Oseawater) + 0. ten (Otest – Oseawater) 2An mean O value for the northern and southern portion of the Bay of Bengal has been obtained from the ratio of O and O is the calcite shells of Foraminifera. OSMOW is equal to 0 %North: T (& A ; deg ; C) = 17. 04 – 4. 34 ten (-3 – 0) + 0.

x (-3 – 0) 2 = 31. 5 & A ; deg ; CSouth: T (& A ; deg ; C) = 17. 04 – 4. 34 ten (-2. 619 – 0) + 0. x (-2.

619 – 0) 2 = 29. 5 & A ; deg ; CSea surface temperature for the Bay of Bengal varies by 2oC from north to south. This consequence is supported by the addition O gradient to the south seen in figure 2. This means little alterations in temperature can impact the gradient.

Difference in O values between the present twenty-four hours and Last Glacial Maximum

DatasFigure 11: A graph to demo the difference in O between the present and at LGM. Figure 12: Left is a diagram of O values for the Bay of Bengal at present.

Right is a diagram of O at the last glacial Maximum. From Figure 11 the difference in O from present twenty-four hours to LGM can be seen. In the present twenty-four hours O values diminish closer to the seashore of the Bay of Bengal. This form is repeated at the LGM nevertheless here the overall degrees of O are higher and less varied. This can besides be seen in Figure 12. InterpretationThe last glacial upper limit was 20, 000 old ages ago. At this period O values where higher than at present twenty-four hours.

This is the consequence of vaporization of O doing the concentration of O to increase. The H2O that is evaporated into the ambiance falls at higher latitudes off from the Torrid Zones. This consequences in degrees of O to go farther concentrated.

Rivers would be frozen over at this clip and hence O would no longer be fluxing into the bay, conveying with it O. All these factors result in the higher O values during LGM compared to at the present twenty-four hours. The geology of the country appears to hold stayed the same aver the last 20, 000 old ages and hence this can non hold caused the rise. Global currents would be affected by ice sheets so circulation of oceans would hold been less effectual at this clip. This may be the ground for the low sum of fluctuation between degrees of O at the equator and the seashore during LGM.

Decision

The Bay of Bengal has low degrees of O. This flat addition due souths towards the unfastened Indian Ocean. The ground for the depletion in O is the input of H2O as a consequence of rivers like the Ganges. This fresh H2O has travelled across land picking up O which flows into the bay. Close the river oral cavity O values would be at their lowest. In contrast the Arabian Sea has high degrees of O which lessening due souths towards the equator. The ground for this high concentration is evaporation doing the loss of O, input from the Red Sea which is rich is salt.

The Indian Ocean has a lower concentration of O due to currents go arounding molecules throughout the universe.