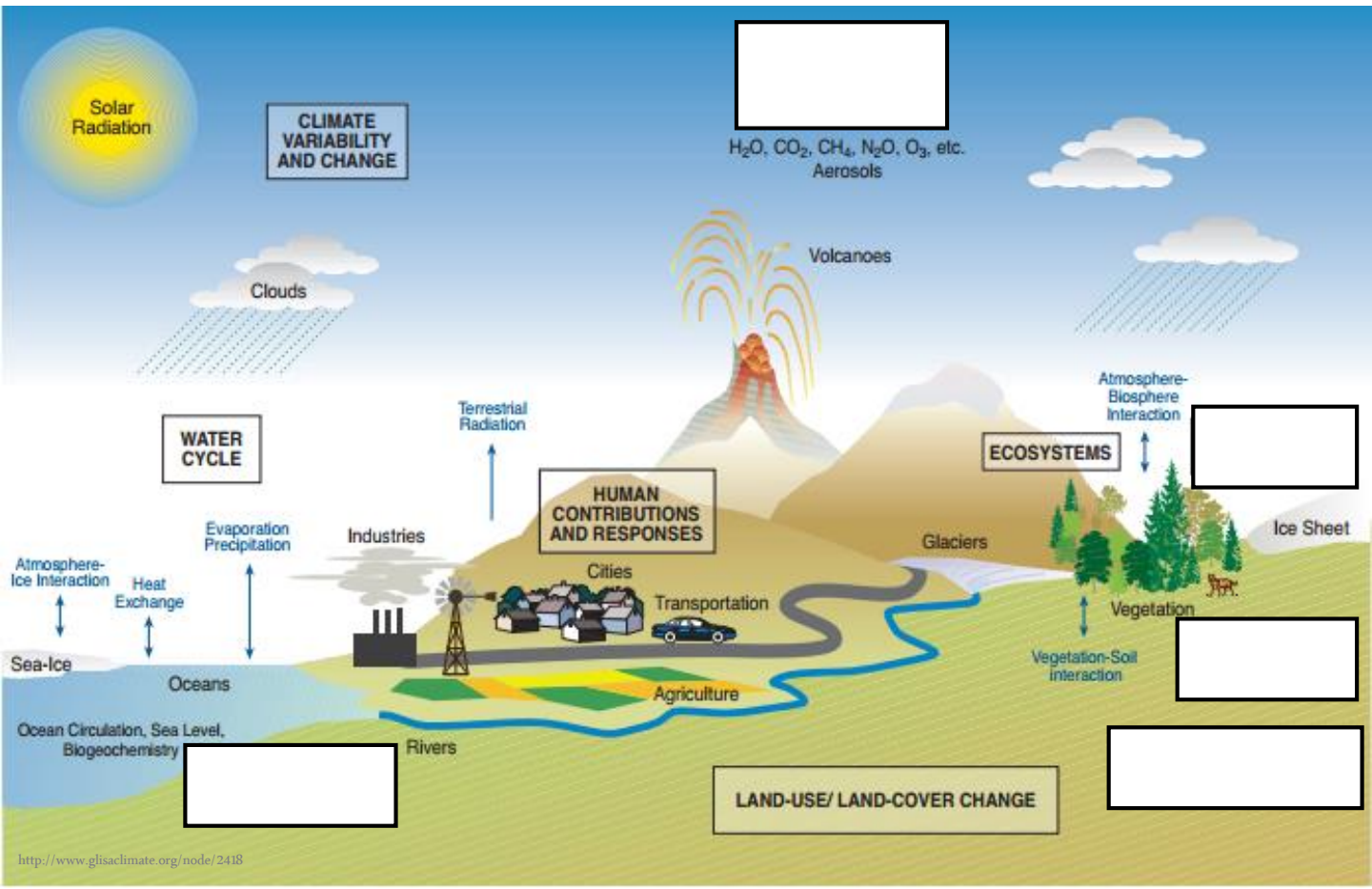
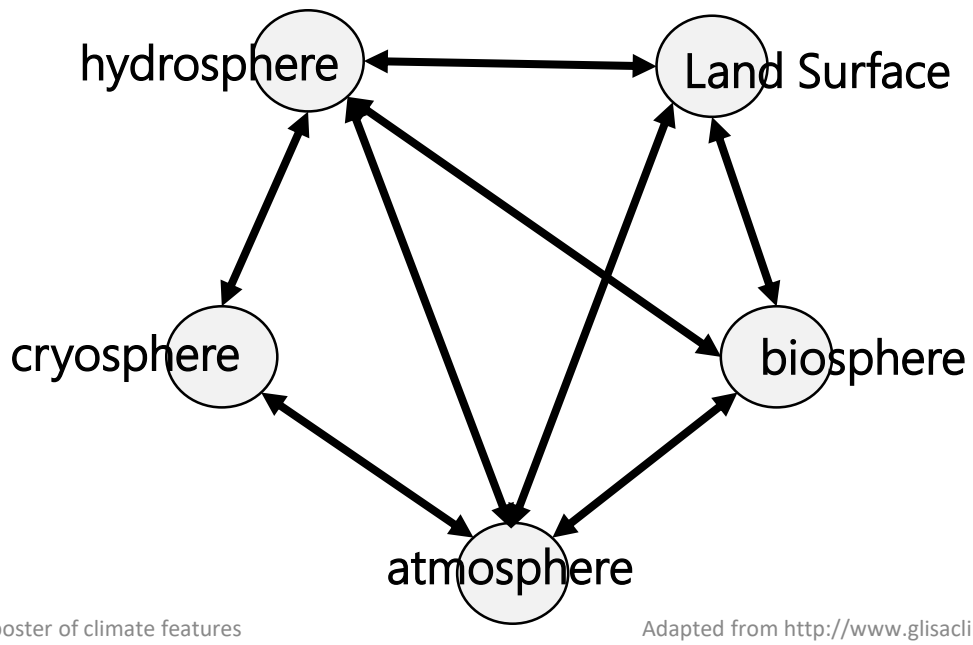
# Climate Components Junior Science




The climate system is an interactive system consisting of <u>five major components</u>: the **atmosphere**, the **hydrosphere**, the **cryosphere**, the **land surface** and the **biosphere**, influenced by various *forcing mechanisms*, the most important of which is the Sun. Any change, whether natural or human caused, in the components of the climate system and their interactions, may result in climate changes. (IPCC)

1. Label the five components above
2. Use information from the diagram, and the word bank, to label some interactions between components

O *weathering* O *evapourating* O *freezing* O *photosynthesis* O *respiration* O *plant/leaf litter* O *precipitation* O *combustion* O *ocean carbon sink* O *runoff* O *transpiration* O *plant water uptake*






Adapted from http://www.glisaclimate.org/node/2418

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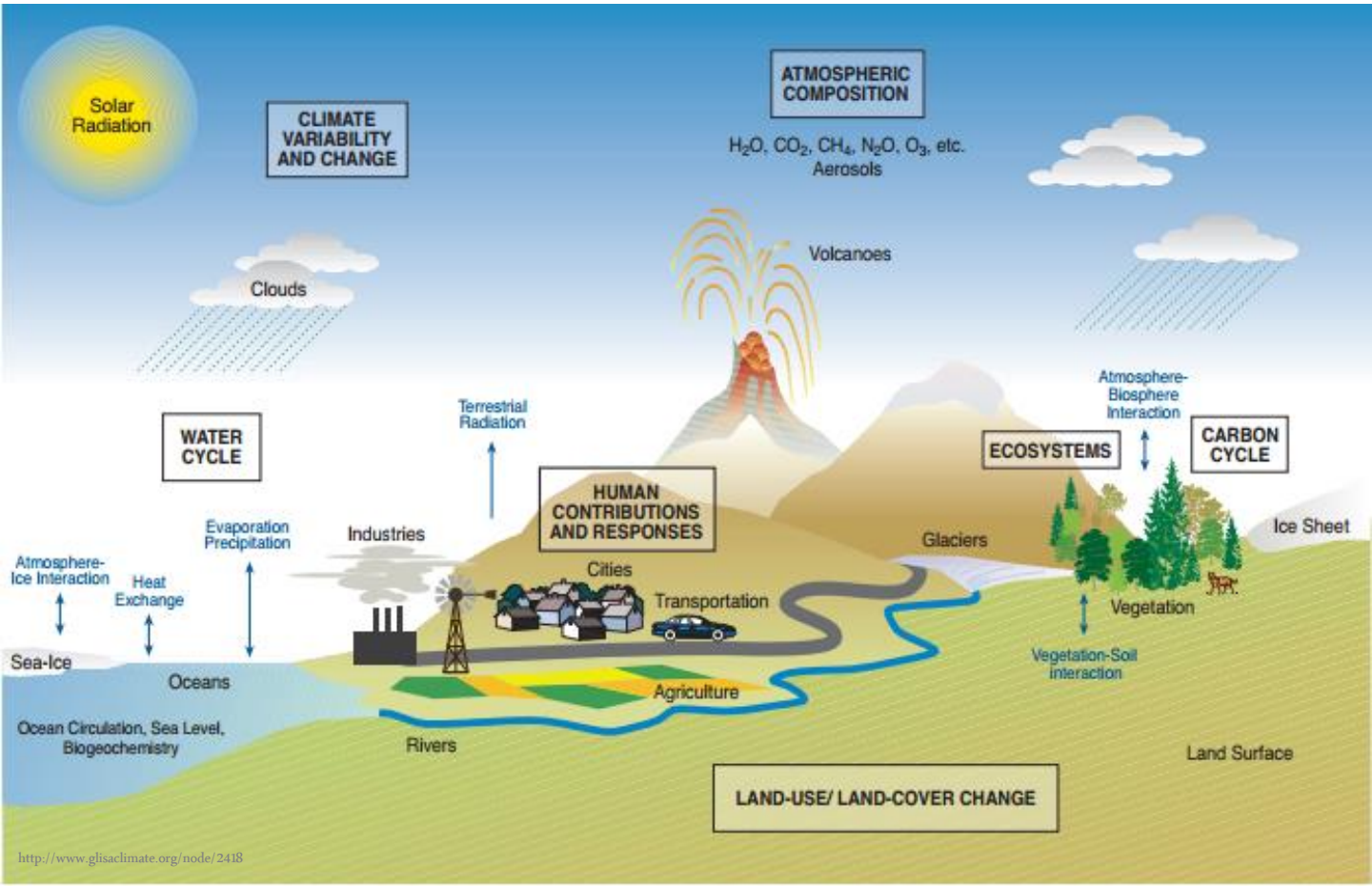


The climate system is an interactive system consisting of <u>five major components</u>: the **atmosphere**, the **hydrosphere**, the **cryosphere**, the **land surface** and the **biosphere**, *forced* or influenced by various *forcing mechanisms*, the most important of which is the Sun. (IPCC). Use information from the diagram to complete chart below:

| Component | Comprised of: | How can Human Activity influence this component? |
|---|---|---|
| Atmosphere | $N_2$, $O_2$, Ar, $H_2O$, $CO_2$, $CH_4$, $N_2O$, $O_3$, aerosols | |
| hydrosphere | Rivers, lakes, oceans | |
| cryosphere | Sea ice, ice sheets, glaciers, and permafrost | |
| Land surface | The top layer of the Earth, exposed to the atmosphere | |
| biosphere | All living organisms found below, above and on the land | |



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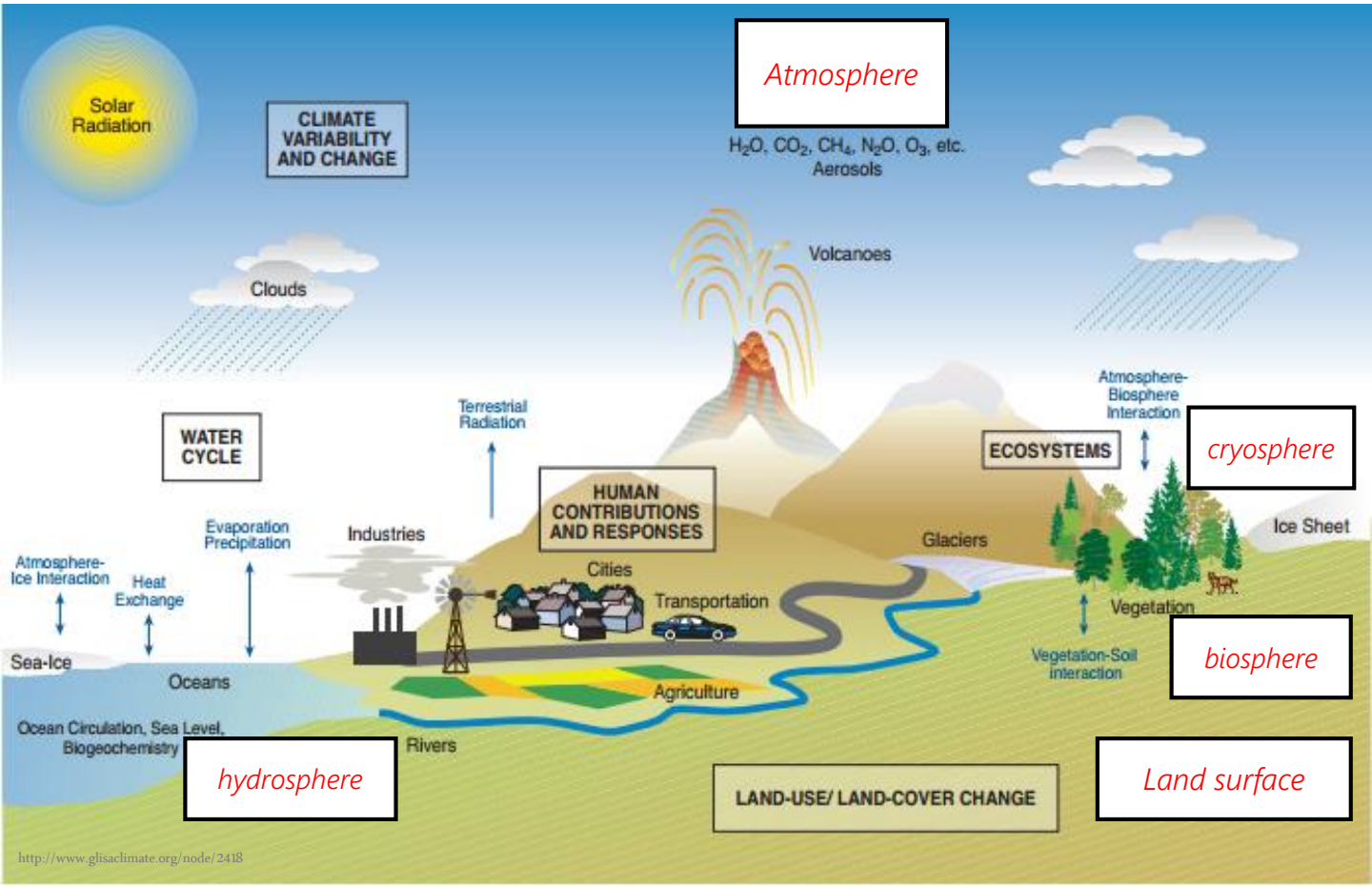
# Climate Components Answer sheet




The climate system is an interactive system consisting of <u>five major components</u>: the **atmosphere**, the **hydrosphere**, the **cryosphere**, the **land surface** and the **biosphere**, *forced* or influenced by various *forcing mechanisms*, the most important of which is the Sun. (IPCC)
Use information from the diagram to complete chart below:

| Component | Comprised of: | How can Human Activity influence this component? |
|---|---|---|
| Atmosphere | $N_2$, $O_2$, Ar, $H_2O$, $CO_2$, $CH_4$, $N_2O$, $O_3$, aerosols | *More $CO_2$ and methane emissions into the atmosphere – increase greenhouse effect*<br>*Adding aerosols* |
| hydrosphere | Rivers, lakes, oceans | *Oceans act as heat reserviour. Heating oceans, due to climate change – more evapouration of water into atmosphere, increasing greenhouse effect. Also Sea level rise* |
| cryosphere | Sea ice, ice sheets, glaciers, and permafrost | *Increasing average temperature is melting cryosphere. Reduced surface ice is decreasing albedo effect (reflecting from ice) so more heat absorbed than reflected. Sea level rise* |
| Land surface | The top layer of the Earth, exposed to the atmosphere | *Changing land use, like agriculture/building/roads, can increase the amount of heat absorbed.* |
| biosphere | All living organisms found below, above and on the land | *Cutting down trees (for fuel) can add $CO_2$ to atmosphere. Trees remove CO2 from atmosphere. Carbon stored in biosphere. Forests retain moisture/water* |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