

MAKE-UP POP QUIZ #1 (worth 10 pts)

NAME: _____ GROUP #: _____

1. A strong El Niño is developing this winter, what will likely happen? (fill in the blanks)

In the _____ Ocean, the Trade Winds [**weaken / strengthen**] (circle one) causing the surface water temperature to get [**warmer / colder**] in places where there is normally a [**warm / cold**] surface ocean current. This will have an impact off the coast of _____ where the fishing industry will _____. In addition, the atmospheric circulation will develop a pattern that is likely to lead to the following winter weather conditions in California and Arizona: _____

2. The photochemical-driven Chapman Mechanism that produces and destroys ozone is a natural process that normally leads to a "steady state" level of ozone in the atmosphere.

In what atmospheric level does the Chapman Mechanism occur? _____

Photochemical means that the mechanism involves a chemical reaction driven by (circle one):



The energy involved is in the _____ part of the spectrum.

In the natural Chapman Mechanism, this energy interacts with which **two gas molecules**? _____

Is a catalyst involved? [**yes / no**] (circle one) If so, what is the catalyst involved? _____

3. The OZONE HOLE occurs when ozone is destroyed by a different photochemical mechanism than the Chapman Mechanism.

In what atmospheric level is the ozone depletion happening? _____

The energy involved is in the _____ part of the spectrum.

This energy interacts with which **gas molecules** (or gas molecule types): _____

Is a catalyst involved? [**yes / no**] (circle one) If so, what is the catalyst involved? _____

4. The OZONE HOLE develops over certain parts of the world and at certain times of the year.

In what part of the world does the largest ozone hole develop? _____

During what season of the year? _____

The **polar stratospheric ice clouds** and **circumpolar vortex of winds** isolate the atmosphere where the hole develops from the rest of the globe, and are two of the **necessary ingredients** for the seasonal development of the Ozone Hole. What else is needed? _____

5. We say that OZONE HAS A DUAL PERSONALITY – depending on where it is located. Explain WHERE ozone has to be located to contribute to the ANTHROPOGENICALLY ENHANCED GREENHOUSE EFFECT – and how it forms there:

Where: _____ How it forms there: _____