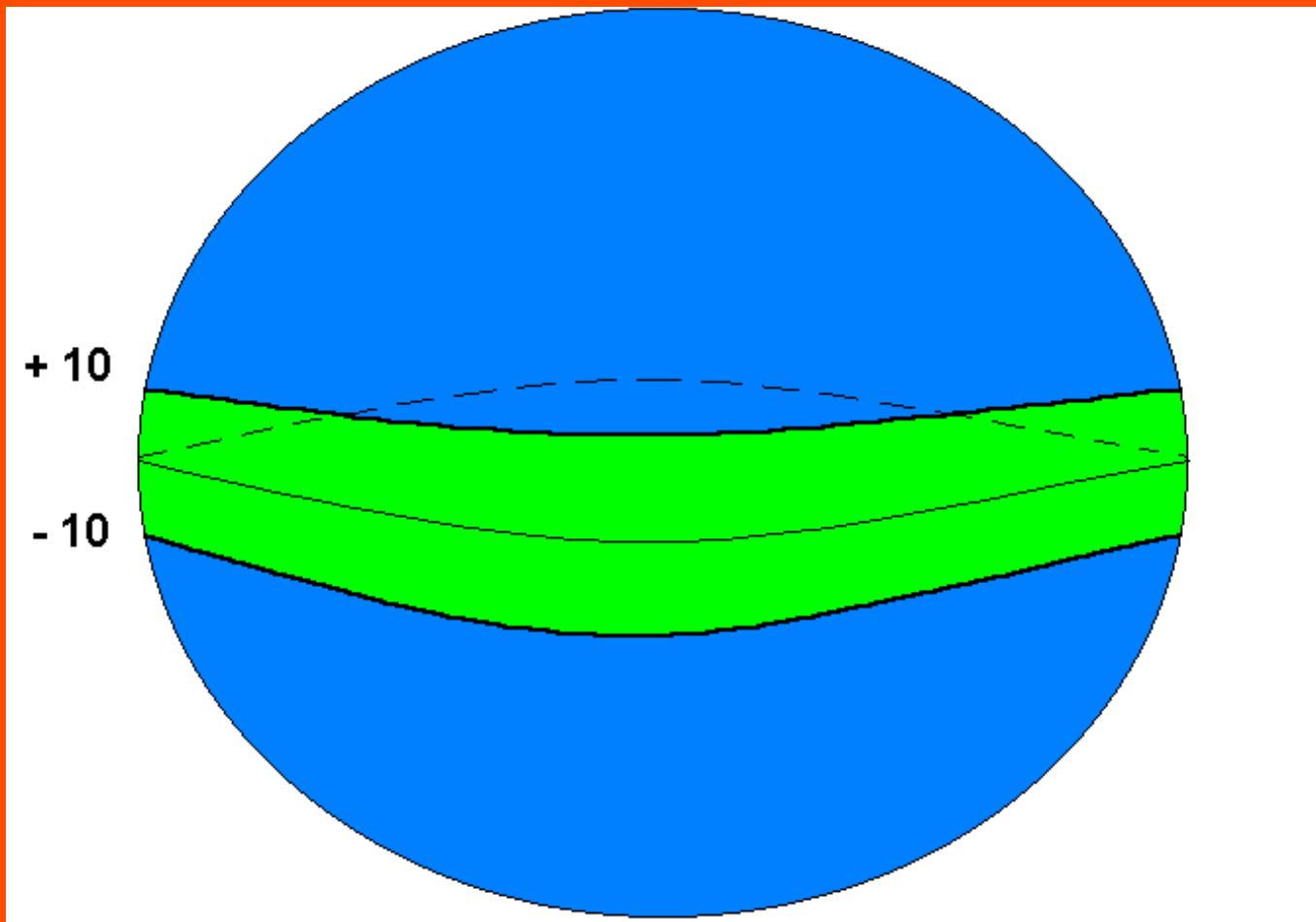


Sketch of Our Latitude Band

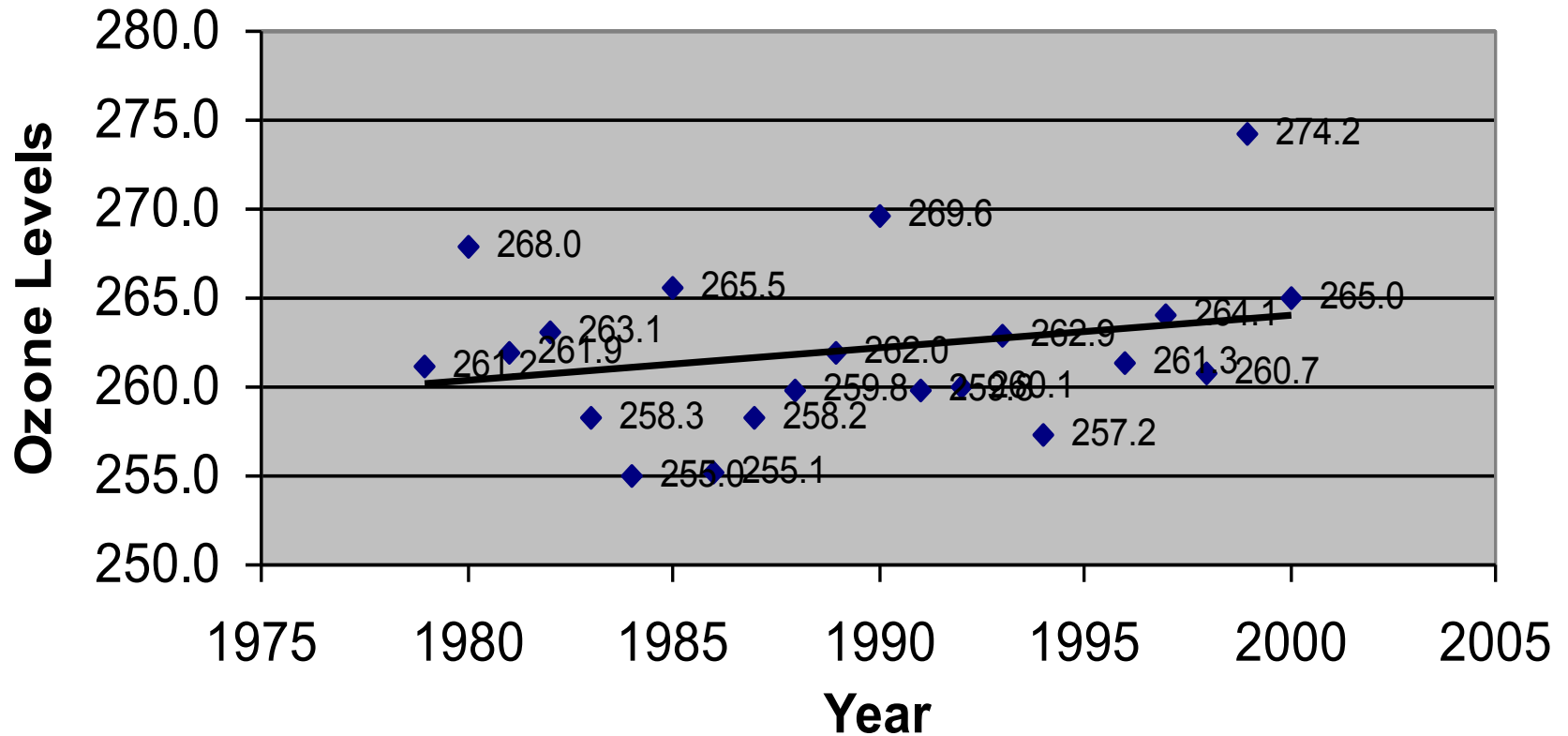


Ozone Averages 1979 - 2000

Band -10 to +10

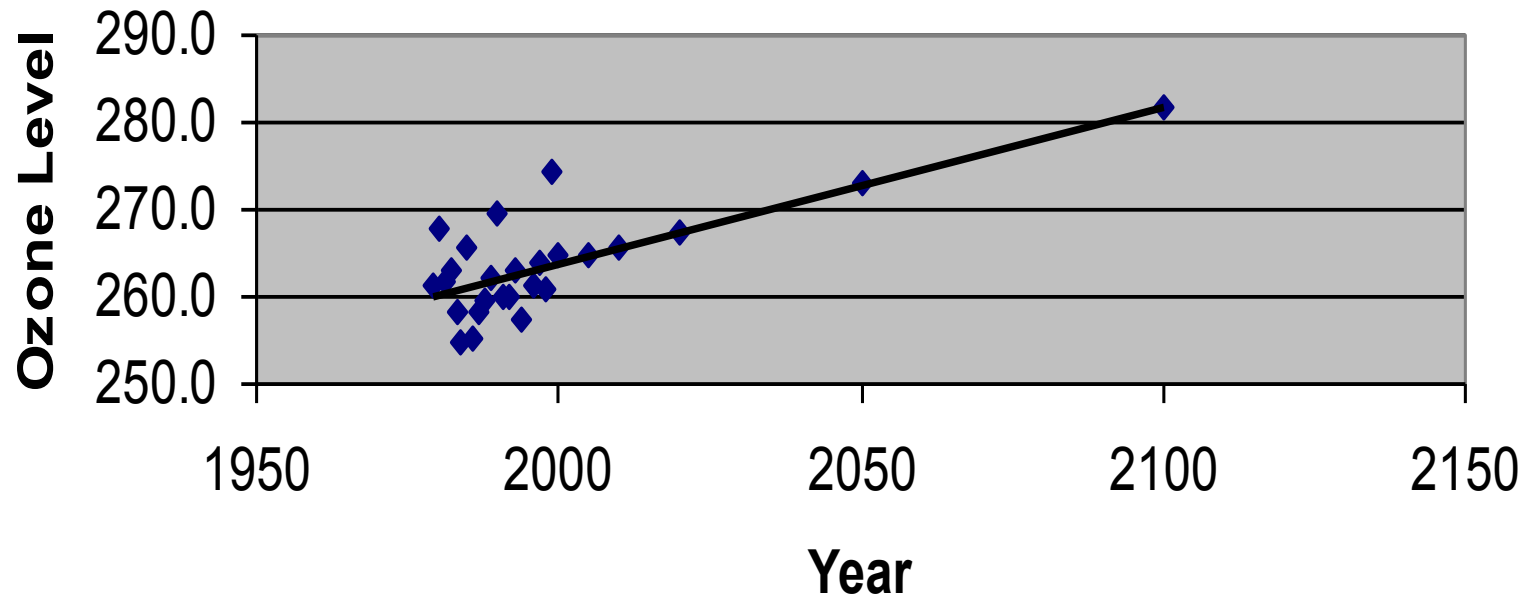
$$y = 0.1796x - 95.279$$

$$R^2 = 0.0636$$

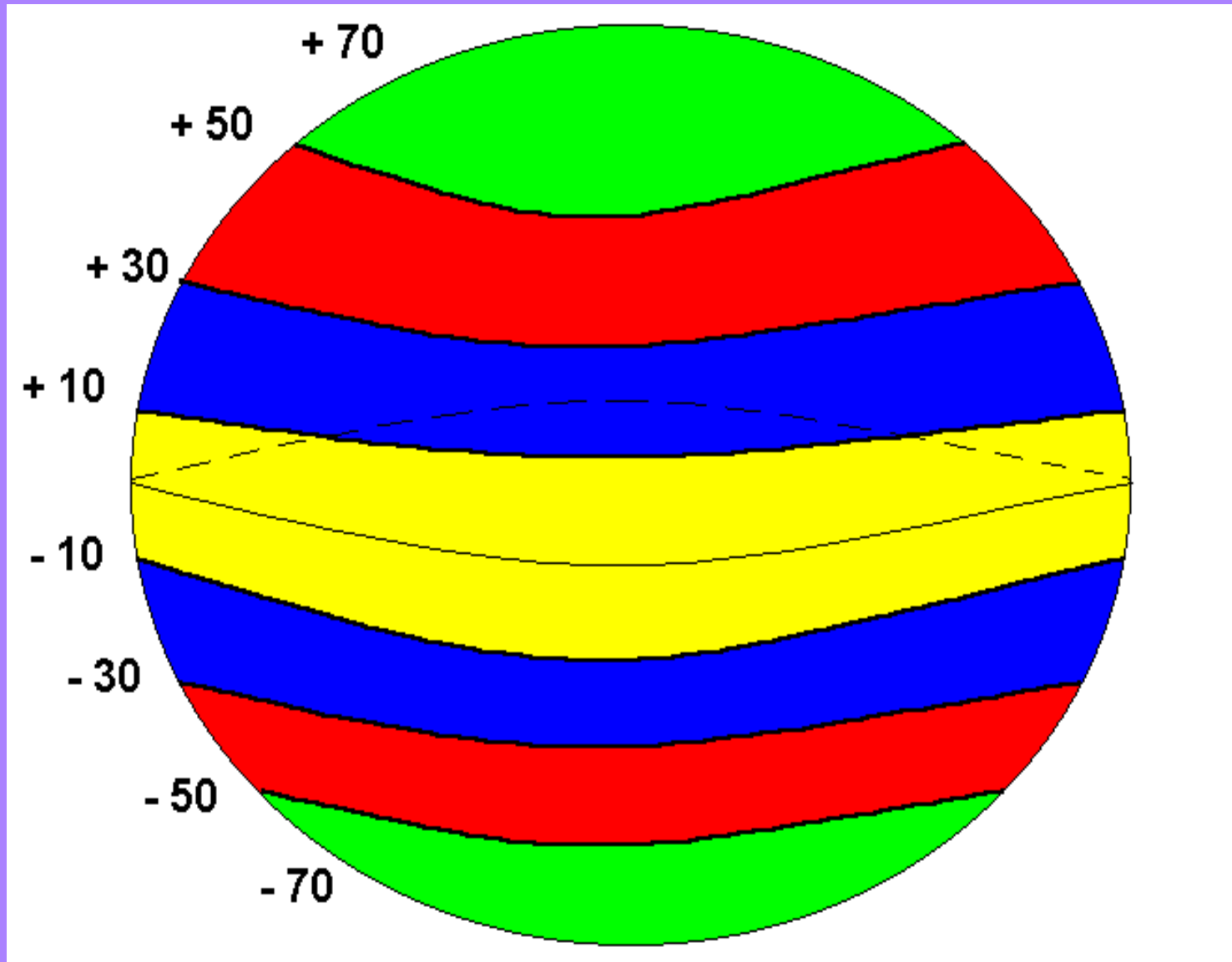


Our Predictions

Ozone Projection until 2100



World Latitude Bands



Worldwide Equations

Latitude- -70 to -50

$$y = -1.65x + 3601.3$$

$$r^2 = .697$$

Latitude- -30 to -50

$$y = -0.3837x + 1068.4$$

$$r^2 = 0.1215$$

Latitude- -10 to -30

$$y = -0.277x + 821.69$$

$$r^2 = 0.107$$

Latitude- +50 to +70

$$y = -1.0078x + 2360.8$$

$$r^2 = .2187$$

Latitude- +30 to +50

$$y = -1.1366x + 2581.2$$

$$r^2 = 0.2152$$

Latitude- +10 to +30

$$y = -.2795x + 826.75$$

$$r^2 = .1246$$

Latitude - -10 to +10

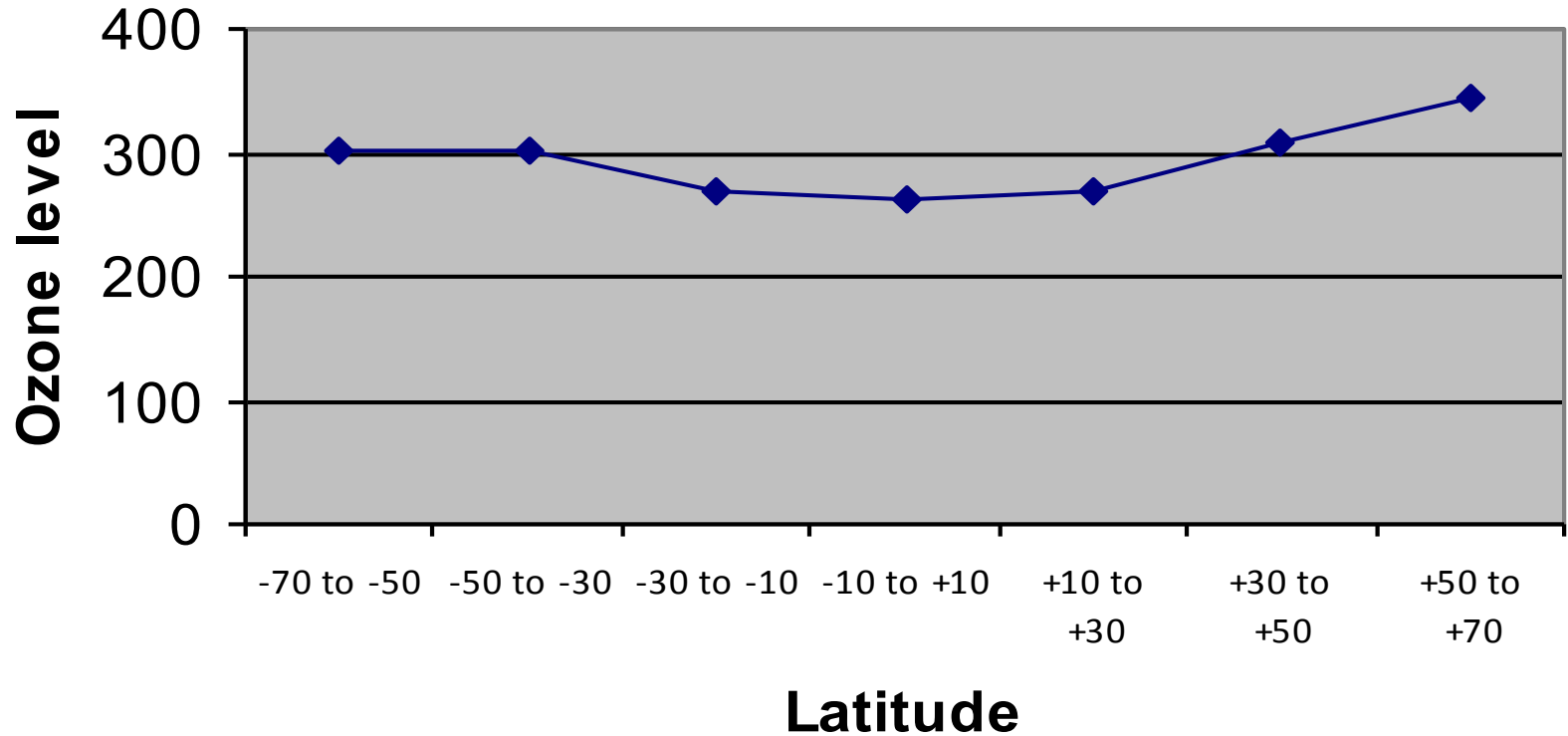
$$y = 0.1796x - 95.279$$

$$r^2 = 0.0636$$

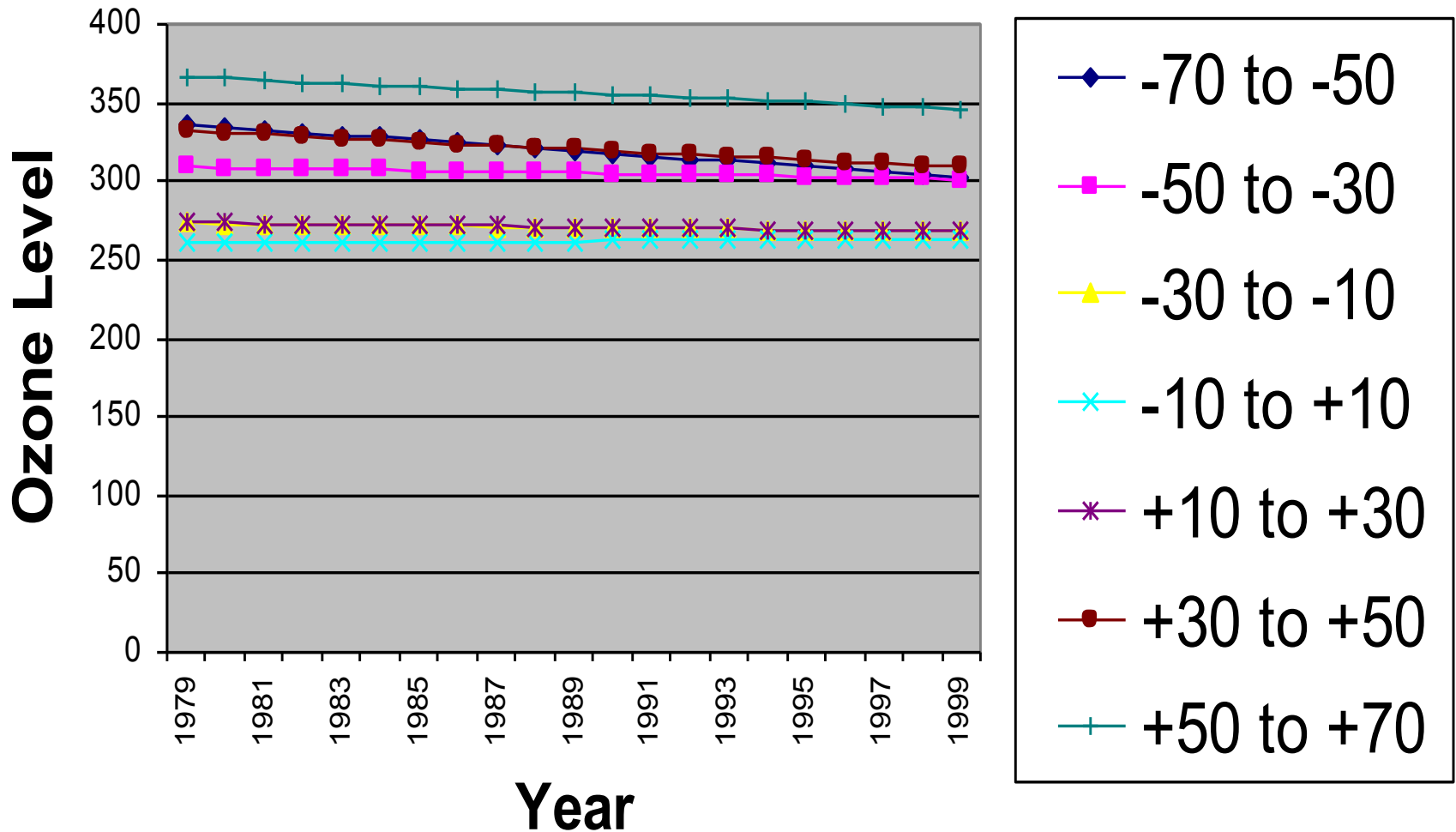


Worldwide Ozone Levels

Ozone Levels for 2000



World Ozone Trends



Why was our function different?

In the absence of any other factors, you could expect that total ozone levels would be highest over the tropics and correspondingly lower in the Polar Regions because of the greater intensity of solar ultraviolet radiation in equatorial regions. These high levels result from the direct overhead sun and the naturally low levels of ozone found in the tropics. Satellite measurements of ozone reveal these low levels in the tropics. Throughout the year, low total ozone amounts in the tropics combines with the direct overhead sun to create the very high amounts of UV exposure.

Ozone Layer Protection from UV-B

UV-a	not absorbed by the ozone; but is not genetically harmful
UV-b	is only partially absorbed by the ozone; hazardous to living things
UV-c	potentially most harmful; completely absorbed by ozone

Ozone screens out most UV-b, but some reaches the surface. If the ozone layer were to decrease, more UV-b radiation would reach the surface, causing increased genetic damage to living things.

Health Concerns

- Malignant and non-malignant skin cancers
- Activates & exposes the immune system to bacteria and viruses
- Causes eye damage (ex. Cataracts)
- Sunburns and skin aging
- Increases the risk of allergic & toxic dermatitis
- Increases cost of health care
- Impact prominently on indigenous populations
- Reduce yield in many significant food crops
- Reduce fisheries yield
- Destroys outdoor equipment and materials by depleting their color

Future of the Ozone?

Manmade chlorofluorocarbon compounds, (CFCs), are contributing to serious ozone loss in the stratosphere. The "ozone hole" is a seasonal phenomenon over Antarctica, but it has worldwide ramifications. Though just a "trace gas," the presence of ozone is critical to the existence of life on the land surface of Earth, since ozone shields the surface from biologically destructive ultraviolet radiation from the sun. Scientists from the World Meteorological Organization have begun the task of trying to forecast ozone levels. They are hindered by natural occurrences such as volcanic eruptions and naturally occurring chlorine, plus other currently unknown factors. Due to CFC cutbacks, the ozone should return to the 1979 state it was in by the year 2075.

Future of Ozone Layer?

Cont...

As we've seen by the graph entitled "Our Predictions," we can plug in a certain year and find out the ozone level of that year. We can thus deduce that we can predict what the ozone level will be for any year in the future. According to our data, the ozone layer looks as though it's repairing itself.

REFERENCES

<http://jwocky.gsfc.nasa.gov>

<http://www.greenpeace.org/~ozone/index.html>