Source: NASA Earth Observatory

The good news is that the ozone layer is recovering. The reason it's recovering is because the international community agreed — in the Montreal Protocol — to phase out harmful chemicals that were depleting the layer and causing huge holes in it. That's the conclusion of 300 scientists who recently issued a "Scientific Assessment of Ozone Depletion 2010." Nevertheless, the springtime hole in the ozone layer above the Antartic continues to appear just as it has for thirty years and will continue well into the 21st century.

The Scientific Assessment also has some good news for total greenhouse gas emissions emitted over the past several years. The Montreal Protocol produced significant "co-benefits," in the parlance of environmental policy types. Co-benefits occur in environmental policy making when — in addition to the environmental benefit targeted by the policy, like protection of the ozone layer in the case of the Montreal Protocol — other environmental benefits occur. The Montreal Protocol phased out ozone depleting substances called chlorofluorocarbons that were widely used for air conditioning and refrigeration. These CFCs are also potent greenhouse gases so their elimination resulted in huge decreases of emissions that cause global warming. The Scientific Assessment estimates that the elimination of ozone depleting substances also eliminated an amount of greenhouse gas emissions "five times larger than the annual emissions reduction target for [2008-2012 period] of the Kyoto Protocol."

Now for the bad news for climate change. When the international community agreed to phase out ozone depleting substances, it obviously didn't agree to end refrigeration and air conditioning. Instead, CFCs were replaced with chemicals that don't deplete the ozone layer. Those chemicals do, however, emit greenhouse gases and the gases they contribute are very potent. So the replacement gases for ozone depleting substances are contributing a large amount of greenhouse gases and are increasing rapidly. This rapid increase is due at least in part from increasing demand for air conditioning and refrigeration in Asia.

So what can be done about the fact that the new chemicals for refrigeration and air conditioning — HFCs or hydrofluorocarbons — contribute to climate change? There's an effort to amend the Montreal Protocol to regulate HFCs because at least some substitute chemicals exist for HFCs. Although the Montreal Protocol was designed to attack the problem of ozone depletion it might have new life as treaty to tackle climate change.