DICKENS WAS RIGHT ABOUT CLIMATE CHANGE

Charles Dickens opened his Victorian-era novel "A Tale of Two Cities" with these famous lines: "It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness . . ."

I found Dickens’ contradictions particularly helpful for understanding the totality of global environmental problems, as recently documented by my bedside reading: two peer-reviewed articles published in the Sept. 18 issue of the journal Science.

"It was the best of times . . . the age of wisdom." These phrases aptly describe "Ecological Dynamics Across the Arctic Associated with Recent Climate Change," written by 25 authors from the United States, Denmark, Sweden, United Kingdom, Norway, Finland, France, Canada, Greenland and Scotland. Warming since the mid-1960s has caused dramatic reductions in terrestrial snow cover and sea ice extent, the main drivers for ecological changes in the region. The most serious effects involve progressive mismatches between the timing of plant food availability (marine and terrestrial), herbivore reproduction and predator movements. Judging from the cooperation between these nations in the face of a common problem, this is the "best of times" for their common commitments.

"It was the worst of times . . . the age of foolishness." These phrases helped me understand the policy forum "Looming Global-Scale Failures and Missing Institutions" by 10 authors from Australia, Sweden, the United States, Greece and the Netherlands. As the title suggests, the fate of the world lies less in the hands of technical expertise than in humanity's ability to develop new institutions that deal with coalescing issues that transcend sovereign borders.

Indeed, it's foolish to rely on existing global initiatives because most concentrate on a single topic, for example the Intergovernmental Panel on Climate Change's focus on disruptions of carbon cycles, the World Health Organization's focus on antibiotic resistance, The North Atlantic Treaty Organization's concern about nuclear proliferation, the G8's (the main industrialized countries) emphasis on international trade, and many others.

These specific drivers of change are complexly intertwined with world population and its concentration in cities, poverty, terrorism, increased per-capita use of natural resources, and the connectivity of economic, social and ecological systems. The unwanted outcomes of these interactions are emerging faster than existing transnational institutions can adapt to them.

The best of times and the worst of times also co-exist geometrically. Recall that lines of latitude make circles that get progressively smaller as one moves away from the equator. Canada, Alaska, Russia, Finland, Sweden, Norway and Greenland, which lie on the Arctic Circle, are as globally distributed as those farther south in terms of longitude. But their high latitudes renders them close enough to share the same unwanted environmental changes. Similarly, these nations have seen less historic difference between a cultural east and a cultural west than have countries further south.

In contrast to lines of latitude, lines of longitude - called great circles - extend from pole to pole with an identical circumference. The global story of longitude is one of disparity between north and south. Broadly speaking, both poverty and potential biodiversity loss rise dramatically toward the equator, with Australia, southernmost Africa, and southern South America being similar to North America, Europe and central Russia. All face a moderate to significant biodiversity threat and proportionately less poverty.
In contrast, the equatorial and subequatorial nations of Africa, South America, the Indonesian-Philippine archipelago, and southern Asia face much more serious problems.

The "Tale of Two Cities" contrasted London and Paris during the late 18th century. My tale of two science articles, and my tale of two spherical geometries involves the whole world.