

## THE STARRY SIDE

## Orion's final bow

BY GREELEY WELLS

There's something to notice about the Spring night sky: it's comparatively empty and there's a very interesting reason for this. We live in the Milky Way Galaxy which is like a thick, slowly-swirling plate-like form moving through the universe. Our galaxy is just one of many—actually one of billions, we now know. Here on earth we are approximately in the middle of the Milky Way, so when we look at the night sky we are usually looking out into our own galaxy. That means usually every star we see, certainly the large, easily visible ones, is within our galaxy. However, right now our night vantage point is not into or along our galaxy but out from it! We see fewer stars in spring, because we are looking out into almost-blank space.

How does this work? In the spring, when we look at the night sky we are looking out away from our galaxy; it's actually all around us, but most of it is just below the spring horizon line all the way around. Imagine a large thick plate made of glass with beautiful stars or diamonds in it, and we are near — but not in — the center of the thickness. From all our views sideways all the way around us and below us we would see diamonds. Looking into the thickest part there would be a great many, and that's exactly what the Milky Way is in our sky. But looking straight up and out, we would see far fewer diamonds, simply because it's the thinnest part of the plate from our position. We don't really see stars outside of our galaxy, because it floats in space all by itself. We only see our "neighbor" galaxies in the distance, and I mean distance— hundreds of thousands of light years away! They are so small as to mostly look like stars or smudges to the naked eye. Because all the real stars we see are in our galaxy, we see fewer stars in spring, when we look out into almost blank space. (There are a few of our stars between us and the edge of the galaxy because we don't live on the very edge.)

The winter constellations are sinking in the west along with the winter horizon of our galaxy; in summer, the eastern horizon will rise, and along with it will rise the summer constellations and the Milky Way Galaxy, home for our solar system and us. So bright Sirius is setting in the west as winter sets, and bright Arcturus is rising in the east as spring rises.

Before going on to other subjects, I must mention Orion's final triumph. The hunter Orion (and at his heels his dog, Sirius, the brightest star in the sky) sinks into the west gracing our Spring sunsets. And amazingly, he does it on his feet,

standing tall, perfectly oriented vertically. Feet on the horizon, belt parallel to it, arms up facing Taurus whom he's been battling all this time to his right. It's a perfect end to his show— you might remember how he started out in the east on his back? So for almost six months Orion has slowly risen and rotated toward this perfect landing in the west. Next, of course, he'll sink out of view, moving northerly.

Following Orion, dominating the night sky next, will be a dipper and a lion. The lion moves right overhead with the Big Dipper high and close in the north. If you've got a comfortable lounge chair or lie back on the ground feet to the south you will see both these constellations right-side up. The dipper's real name is actually Ursa Major (the big bear). Many cultures (including our American Indians and our western cultures) have seen a bear, but there's something odd about that, as you'll see in a second.

Are you lying down with your feet pointing south, and north behind the back of your head? If so, imagine the dipper itself as the body of a bear and the handle of the dipper as its tail. Hard, right? What bear has a long tail—or almost any tail for that matter? Well, there are stories in some of cultures about the bear losing its tail, so that's sort of an explanation. Now look further south and you'll see three sets of two close-together stars. Those are three of the four feet of the bear; as you can see, he's big. These legs point halfway to Leo (the lion) who's also upright, but lying down (not standing up like the bear). To our right is the Sickle, or backwards question mark; that's the lion's head and mane. At the bottom are the front legs and the very bright heart (Regulus). To the left is a triangle forming the behind and tail of the regal lion. The pointers of the big dipper actually can be used backwards and will point right to the lion! In other words, a line runs from the north star through the pointers of the big dipper, and right to Leo. You can find the lion this way any time he is in the sky. These two huge constellations are locked together (with the always-still north star) as they rise, swing overhead in April and into the west in May. As Leo sets this summer, the Big Dipper (or the big bear) will swing around under the north star and begin to be upside down, or maybe set altogether depending on your northern view. At my house, a mountain and evergreens swallow up my bear when he gets low.

See ORION, page 6

## TRENDS AND OBSERVATIONS

## Hope for sanity in the climate debate

BY KIRK PERTTU

The last few months have been an eventful time for the discussions surrounding climate change science and policy. Until sometime in February, mainstream American newspapers and television had largely failed to cover the recent big stories in any meaningful way, to the point that both the Columbia Journalism Review and Knight Science Journalism Tracker felt it necessary to address this absence of coverage (CJR quite critically). Meanwhile, British and Indian newspapers, as well as climate-related blogs, have been in a slowly-but-steadily building climate-frenzy since last November.

The first story began a few weeks before the UN Copenhagen climate summit with the leaked or hacked release of thousands of emails of many prominent climate scientists writing from and to the University of East Anglia's Climatic Research Unit (CRU), one of the most prominent climate research organizations in the world. You may have heard it referred to as "Climategate" when it was briefly acknowledged by American media. It's impossible to properly summarize in as little space as there is to give to it here, but in short the released emails seem to suggest, amongst other things, that a collection of climate scientists sought to subvert the peer review process and acted to obstruct Freedom of Information (FOI) requests.

The story is still progressing. In the last months, CRU's head, Phil Jones, has stepped down, a UK government agency has determined the released emails represent prima facie evidence that Jones criminally obstructed FOI requests, and the Parliament has initiated a formal inquiry.

The second story involves the UN Intergovernmental Panel on Climate Change (IPCC). Its intermittent assessment reports—particularly the "Summary for Policymakers" portions of them—are looked to by most governments of the world as the most thorough representation of the risks anthropogenic climate change poses to the world. The controversy began with troubling conflicts of interest coming to light regarding the organization's chairman, Rajendra Pachauri, but quickly led to deeper concerns about the IPCC's citation and review processes.

This story is also still far from over. At this point, the UN has announced it will begin an independent inquiry into the organization. Some are defending the IPCC as essentially sound while others, including the former IPCC chairman and other respected climate and political scientists, are expressing deeper concerns and suggesting the IPCC structure or processes may need a fundamental overhaul in order to establish a reasonable credibility.

Neither of the extreme political camps in the greater debate, both of which often sacrifice accuracy in favor of advocacy, have come across very well in dealing with these stories. One side predictably claimed that both of these developments, as well as the recent heavy snows in the northern hemisphere, each independently represented the exposure and hopeful end of the "global warming hoax." The other side claimed there's "nothing to see here" and that the recent snows were in fact expected under catastrophic climate change. Attempts from both advocate

extremes to pass these statements off as reality are insulting, and it's disappointing that mainstream American media hasn't made a better effort to provide people with the tools to make informed judgments about these kinds of misrepresentational claims.

To be clear, when I refer to the extreme sides in the climate change debate above and below, I'm not lumping the informed skeptics in with the "climate-deniers" on one end, nor am I equating the climate scientists and others who believe destructive anthropogenic climate change is a likely enough concern to support action, but who don't feel comfortable misrepresenting the state of the science to the public in order to spur that action, with the alarmists.

While both extremes have been making foolish statements, there's no doubt the recent months have played far worse for the alarmist camp. Recent polls of Americans have shown a significant increase of those who don't consider climate change a serious issue, though it's important to note that this is probably due to a combination of reasons. The ongoing economic crisis and the failed Copenhagen summit in December as well as other factors could be important players in the changing public opinion as much as the recent news. Whatever the reasons, faith in those advocating strong and immediate action on climate change through a cap-and-trade scheme (the mechanism used in the House's Waxman-Markey climate bill) has been falling sharply, to the point where Lindsay Graham, one of a group of three senators expected to present the Senate's version of climate legislation in the coming weeks, recently said, "Cap-and-trade, as we know it, is dead."

While this decline in public support has visibly dismayed the extreme in the public debate that pushes climate change catastrophism and cap-and-trade as the only solution, and has made many of those who object to any kind of political action almost giddy, some others have looked at it with a peculiar kind of cautious optimism.

In the climate change discussion, there's a vast middle space between the two disproportionately exposed extreme camps, mostly unseen under the partisan and ultimately unproductive public circus. This middle ground is populated by a largely silent (at least as represented by the mainstream media) collection of groups and individuals comprised of climate scientists, economists, political scientists and interested and informed lay people. While these people may have greatly differing views on specific issues within the science, and divergent beliefs on what proper climate and CO2 policy should be, they generally share some common traits: an annoyance with the oversimplification and misrepresentation of climate science coming from both extremes; an acknowledgement of the profound uncertainty still existing in our understanding of earth's climate systems; a conviction that scientific integrity must come before any other concerns such as the promotion of certain environmental policies, even if they happen to agree with such; and a deep frustration with both

See CLIMATE, page 6

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