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Evidence dictates we address climate change

By Dr. Hans Martin

And then there were three ? the third part of the ?nutshell? trilogy was published in the Sentinel June 11. Perhaps these articles were intended to provide Sentinel readers with complicated lessons in science and the scientific method. I believe they did not achieve this goal. Here, and in earlier articles, I have tried to clarify what we know and what our children should know.

To start, several comments in Part 3 are misleading or wrong. They include the following.

1. ?... obviously all the Earth's energy systems are solar driven.? Nonsense! Volcanoes and plate shifts (tsunami sources) are not caused by sun intervention. Both have impacts on the Earth's energy systems.

2. ?Renowned climatologist Prof. Tim Patterson ..? Dr. Patterson is not a climatologist.

3. According to Dr. Patterson, as reported by Gairdner, between 1940 and 1970 ?CO2 was going up like crazy.? Gairdner continues with a further quote from Patterson ?there is no correlation between warming and CO2.? No comment!

4. Nutshell 3 reports that the Earth's climate is a result of solar activity and cosmic particles over periods of tens of thousands of years. We can include here the compelling observation that Mars has been warming and therefore by association, the Earth is warming and the oceans are releasing the observed increase of CO2.

Mars, thousands of years! Quite a lot of us are rather worried about the next decade or two.

5. ?There is a rather large fuss made about the fact that if ice melts sea levels do not rise, not 1 millionth of an inch.? Gosh! Isn't that amazing! Not! Actually, the rising of the oceans will be associated with the rising of the temperature of the water and the subsequent expansion of the water column. The exciting properties of the melting of two ounces of ice in a glass are actually irrelevant.

What now?

There is an awful truth about climate change. It's a paradox ? no one wants to hear the truth. Politicians, economists, environmentalists all of us want good news. We like to think we are in control of our destiny. We read in an article by Oliver Geden, in Nature magazine, 06 May 2015:

Disenchantment has set in well ahead of the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris in December. Scientists, policy-makers and the public already accept that progress will not be enough to keep global average temperature rise within the 2 °C limit set at the 2010 UN climate summit.

Global climate targets are being watered down. Scientific advice is becoming another casualty. Researchers who advise policymakers have two options: be pragmatic or be ignored. Global corrections needed now are modified as stringent mitigation scenarios are postponed. The process becomes increasingly less plausible as deadlines for correction stretch farther into the future.

With dismay, I share the opinion of Oliver Geden, expressed just one month ago:

?The obvious truth about global warming is this: barring miracles, humanity is in for some awful s**t.?

http://www.vox.com/2015/5/15/8612113/truth-climate-change

In Part 2 of William Gairdner's column on climate change, we wander through Grade 7 biology and organic chemistry covering the past centuries and millennia.

That eminent climate-change scientist Al Gore is challenged and he lost, apparently. Then we learn how to measure climate change running here and there frantically with a single thermometer, frustrated because we do not know where to take the momentous measurement of temperature. The challenge is enormous as demonstrated by the 12.5 million mi.² which constitute the Antarctic.

Oh where, oh where should we place our thermometer? At the airports! But alas there are very few in Antarctica and airports are in cities which are not appropriate because they grow and that is called a heat island. It gets worse. Often it seems, when measuring, we don't know what time it is and often temperatures are taken only monthly. Sometimes readings become interrupted because the snowmobile ran out of gas, etc.

At the very least, these ignorant comments are insulting to meteorologists and to the intelligence of the supporting agencies, the weather services of Canada and elsewhere. The comments are simply a cheap shot by a dilettante.

Somehow part two of the ?nutshell? series missed the science, most notably the voluminous reports by the IPCC. Hard to believe. There is so much of it done by so many people, some even more qualified than Al Gore.

Best to start with the fundamentals. Climate is not measured at one place as a temperature. Climate is the sum effect of several variables over large areas, like a dry, or wet, or cold climates. It is measured using integrating variables: how much sea ice coverage

was there in the Arctic 20 years ago compared to today; how many glaciers have disappeared from your national parks in the past 30 years; what is the daily concentration of carbon dioxide at Alert, Northwest Territories, thousands of kilometers from carbon dioxide sources, and so on. You can tell, even if you are not a scientist, that there is something drastically different about the carbon dioxide concentrations every day, every hour at Alert today compared to what it was 100 years ago or 50 years ago. The current record is stunning.

This is not rocket science. This is observation from which you develop hypotheses from which you test the best explanation with further research. In other words you have an observation and you check it against hypotheses again and again and again, hence the word research, not just ?search.?

When you study the glaciers on Greenland you might recall that moving at glacial rate usually means very slowly. Satellite images and aerial photographs from the 1950s and 1970s show that the front of the Helheim glacier had remained in the same place for decades. Then, in 2001, the glacier began retreating rapidly, and by 2005 the glacier had retreated a total of 7.2 km (4.5 mi), accelerating from 20 m (66 ft) per day to 35 m (115 ft) per day during that period.

I don't think 35 m a day is a slow pace for a glacier ??I think it is terrifying. And then there is a possibility with satellites equipped with all kind of radiation devices to measure the average temperature of the surface of the ocean, whichever one you wish to choose. No thermometers here. No concern about where to stick the thermometer in the water. Just a number which is rising and which represents an astronomical amount of additional energy absorbed by the ocean in the last few years.

It seems that the author of the ?nutshell? reports does not have any information more recent than 1998 or 2007. Actually this is not the most recent data.

Several reports by the IPCC document have integrated results of hundreds of scientific studies by individuals who specialize in climate, even in Canada. I am rather taken by the summary of these investigations of current conditions and not so much impressed or concerned about estimates of CO2 levels some 135,000 years ago or the more astonishing and embarrassing theory that ?440 million years ago CO2 levels were 10 times higher than they are today.?

Much more embarrassing would be the lack of explanation for the more than 52,000 Europeans who died from heat in summer of 2003, one of the deadliest climate-related disasters in Western history. And then we have the escalating real costs of floods, hurricanes and other weather-related phenomena paid by insurance companies. These claims are rising at an alarming rate and likely your policy premiums as well. Premiums are calculated by actuaries who are not interested in who causes the damage or why it occurs. They have no opinion.

We don't have to go back to the archaeological eras of the past. Something is wrong right now. Something has to be done to address the cause and the need for adaptation, including emission reductions.

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