

God's world: our responsibility?

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The two words "God's world" may seem to many of us almost self-evidently to go together. Yet today for many millions of people the idea that the world is in any sense "God's" is alien, even hostile. For those of us with roots in a rich Biblical tradition, on the other hand, we see God as the creative heart of our universe. Yet the advances of science since the Copernican revolution have often presented the church with profound challenges to its world view.

Today, unlike the church of Galileo's day, for example, who saw his insistence that the earth was not the centre of the universe as fundamentally anti-Christian, we should surely embrace the depth of new understandings which have shed profound light on so many aspects of the world in which we live and of the universe of which we are a part. Now we see a universe over 14 billion years old, into which humankind has been the latest of latecomers in the evolutionary development of life. The time scales envisaged by modern physics dwarf the imagination – a scale sometimes glimpsed by the poetic imagination of Biblical writers but only beginning to be captured scientifically in our own age.

As well as the length of its time scales, the earth today is characterised by the complexity and dynamism of its natural systems. In order to understand what many today see as the crisis of the world's natural environment we have to begin by recognising the intricacy of that complexity, the enormously varied length of the timescales of its natural variability, and the range of forces which continue to shape and re-mould it. Only among these forces can our own role then be interpreted.

The modern science of plate tectonics shows how the earth has been changing constantly since its creation. Since the Carboniferous period 356 million years ago a world of one huge ocean and one great landmass has given way to the world of continents that we know today. But far from the stability which our grandparents believed to be the true nature of a world fixed in time and place, we now know that even the continents are moving on their plates at rates of up to 10 to 12 cms a year. But we also know that such movement, far from being gradual, may take place in

sudden and dramatic steps, capable of causing catastrophes such as the Indian Ocean tsunami or the Pakistan earthquake. Thus as we look back at the earth's history we see extraordinary change, operating on every part of the earth's surface and over time scales ranging from millions of years to milliseconds.

Even in the field of climate, the world has experienced great natural variability. In recent geological time (the last 10 million years) we have seen such developments as the first freezing over of Antarctica, almost certainly related to the separation of Antarctica and Australia and the formation of the Antarctic circumpolar current, which today makes Antarctica the coldest and driest as well as the highest continent on earth. Over the last 1 million years we know from the Antarctic and Greenland ice cores that there have been regular successions of ice ages and warm periods, on a scale dwarfing current warming trends. And when we come to the very recent past and the ending of the last ice age about 18,000 years ago we now know that dramatic climate change occurred in remarkably short time spans.

In this sense a widely published graph of changes in temperature and carbon dioxide over the last one thousand years can be seriously misleading. The typical graph shows 1000 years of apparently virtually no change in either temperature or CO₂, followed by a sudden dramatic and continuing leap in both. Thus, the catastrophic human impact is immediately visible. Yet when you go back through the ice core record you find, to take just one example, between 11300 years BP (before the present) and 11220 BP world temperatures rose by about 6⁰C or more.

If variability is absolutely embedded in the earth's climate so it is in many other earth systems. Today we seem almost automatically to blame climate change for any environmental change – and there is a great temptation to predict dire consequences for changes for which humans are then held responsible. One such is the melting of Himalayan glaciers. True, Himalayan glaciers are currently receding – as they have with varying rapidity since the last glacial maximum 18,000 years ago. But today Al Gore, as well as WWF and Greenpeace, are claiming that such melting is the result of human activity and will cause unprecedented devastation. Why? Because, it is said, all the great rivers of South and East Asia rise in such glaciers, and if the glaciers melt the rivers will then dry up. Yet the truth is that glacier melt contributes under 1% of

the total flow of these rivers, rainfall and snow melt contribute overwhelmingly the major share there is no evidence that the melting of the glaciers will have any measurable impact on downstream flows in the plains.

This point illustrates just one vital feature of the world's climates. Current models try to evaluate global change. There remains a huge margin of error in attempts to build scenarios of continental scale climate variability. Yet real world climates vary hugely, as we all know, right down to the local scale. None of this is to suggest that human impacts on the environment are negligible or can be dismissed. Particularly today, with the world's population rising well beyond 6 billion, the challenges of sustaining a world in which natural as well as human ecosystems can survive is indeed enormous. But neither our theology nor our science is well served by misreading the environment or over-simplifying its natural variability. Natural variability has given us mass species extinctions which have threatened life itself. The continuing movement of the continents are continually re-shaping the earth in ways over which we have no control, and in the long term we have to come to terms with a universe quite literally "beyond our control". It is in this context that we have to define, understand and act on our true responsibility – to each other, and to God's gift of our world, a world which offers hope as well as challenge. As the Psalmist exhorts us, "The earth is the Lord's: let us rejoice and be glad in it." (Psalm 24)

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