

Scientists from NAI's New York Center for Astrobiology at Rensselaer Polytechnic Institute have used the oldest minerals on Earth to reconstruct the atmospheric conditions present on Earth very soon after its birth. "We can now say with some certainty that many scientists studying the origins of life on Earth simply picked the wrong atmosphere," said Bruce Watson, Institute Professor of Science at Rensselaer. "By determining the oxidation state of the magmas that created zircon, we could then determine the types of gases that would eventually make their way into the atmosphere," said Trail. The scientists show that the atmosphere of Earth just 500 million years after its creation was not a methane-filled wasteland as previously proposed, but instead was much closer to the conditions of our current atmosphere. "Most scientists would argue that this outgassing from magma was the main input to the atmosphere," Watson said. "To understand the nature of the atmosphere 'in the beginning,' we needed to determine what gas species were in the magmas supplying the atmosphere." The findings, which appear in the current issue of Nature, are the first direct evidence of what the ancient atmosphere of the planet was like soon after its formation and directly challenge years of research on the type of atmosphere out of which life arose on the planet. "We can't even begin to talk about life on Earth until we know what that stage is. And oxygen conditions were vitally important because of how they affect the types of organic molecules that can be formed." "Our planet is the stage on which all of life has played out," Watson said