Full of value: Nanoparticles prevent cotton fibers in textiles from becoming wet or soiled.

12 When the Air Turns the Oceans Sour
Human society has begun an ominous large-scale experiment, the consequences of which will not be foreseeable for some time yet. Massive emissions of man-made carbon dioxide are heating up the Earth. But that’s not all: the increased concentration of this greenhouse gas in the atmosphere is also acidifying the oceans. Scientists at the Max Planck Institute for Meteorology in Hamburg are researching the consequences this could have.

24 Tracing the Noxious Five
For many years now, a phenomenon that threatens both humans and the environment has been moving to the center of attention: the “noxious five” – nitrogen dioxide, sulfur dioxide, ozone, carbon monoxide and particulate matter. Researchers at the Max Planck Institute for Chemistry in Mainz are studying these substances with a view to clarifying the large-scale atmospheric processes associated with the bad air.

32 Earth’s Breath
The amounts of carbon dioxide and other trace gases that vegetation and soil exchange with the atmosphere affect the climate in a variety of ways. Scientists at the Max Planck Institute for Biogeochemistry in Jena are analyzing this complex structure – with the aid of a global network of measuring stations and new data analysis methods.

ON THE COVER: The Earth is a perfect ecosystem and the best place in the universe that we know of for life. The complex interaction of the elements earth, water and air – land masses, oceans and atmosphere – is finely balanced and works very smoothly. But the delicate interplay can easily tip. Researchers are only gradually tracking down the factors that upset the balance of our interwoven planet.

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The Intertwined Earth

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