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Collision with Earth Would Be Devastating.(Brief Article)

ASTEROIDS

If a huge asteroid were to hit the Earth, the catastrophic destruction it causes--and even the "impact winter" that follows--might only be a prelude to a different, but very deadly, phase that starts later on. In an analysis of the secondary ecological repercussions, scientists from Oregon State University, Corvallis, and the British Antarctic Survey have outlined some of the residual effects of ozone depletion, acid rain, and increased levels of harmful ultraviolet radiation.

The findings are frightening. As a number of popular movies have illustrated in recent years, a big asteroid or comet impact would produce enormous devastation, huge tidal waves, and a global dust cloud that would block the sun and choke the planet in icy, winter-like conditions for months. According to Andrew Blaustein, a professor of zoology at Oregon State University, "Scientists have pretty well documented the immediate destruction of an asteroid impact and even the impact winter which its dust cloud would create. But our study suggests that's just the beginning of the ecological disaster, not the end of it."

The immediate results would be widespread death of plants and the large terrestrial animals--including humans--that most directly depend on those plants for food. The atmosphere would become loaded with nitric oxide, causing massive amounts of acid rain. As they become acidified, the lakes and rivers would have reduced amounts of dissolved organic carbons, which would allow much greater penetration of ultraviolet light.

At first, the ultraviolet rays would be blocked by the dust cloud, which sets the stage for a greater disaster later on. Many animals depend on some exposure to ultraviolet light to keep operational their biological protective mechanisms against it. Without any such

light, those protective mechanisms would be eroded or lost. During the extended winter, animals across the biological spectrum would become weaker, starved, and more vulnerable. Many would die. Then comes ultraviolet spring, shining down on surviving plants and animals that have lost their resistance to ultraviolet radiation and penetrating more deeply, with greater intensity, into shallow waters than it ever has before.

"By our calculations, the dust cloud would shield the Earth from ultraviolet light for an extended period, with it taking about 390 days after impact before enough dust settled that there would be an ultraviolet level equal to before the impact. After that, the ozone depletion would cause levels of ultraviolet radiation to at least double, about 600 days after impact." These factors would lead to ultraviolet-related DNA damage about 1,000 times higher than normal, and general ultraviolet damage to plants about 500 times higher than normal. Ultraviolet radiation can cause mutations, cancer, and cataracts. It can kill plants or slow their growth, suppressing the photosynthesis which forms the base of the world's food chain.

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