Radiation and some other effects included in the Impact Effects calculator.

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Radiation produced due to the deceleration of a cosmic object in the atmosphere and due to an emission of a plume generated by crater-forming impacts is one of the main dangerous consequences of these impacts. The thermal radiation can be strong enough to be dangerous to people, to ignite fires and even to melt rocks.

It may be recalled that the Chixculub crater-forming impact of an asteroid 10–15 km in size generated global wildfires, and the famous 1908 Tunguska event, caused by the entry of an object about 50 m in diameter, generated a forest fire within a radius of 10–15 km.

The effects of the thermal radiation could be evaluated based both on the data on nuclear explosions and on a specially developed model. Serial calculations were carried out within the framework of this model. The results of these simulations were used to obtain simplified scaling relations, which allow to determine radiation field on the surface and other characteristics based only on the parameters of the impactor.

The impact of the cosmic object initiates shock waves (see accompanied presentation), seismic effects, crater formation and ionospheric disturbances. Scaling relations for these effects are included in the current version of the Impact effect calculator. These effects are estimated for the probable impactor based on suggested scaling relations.