

# HURRICANES, STORMS AND TORNADOES



Aftermath of a hurricane

**H**urricanes, storms and tornadoes are the third greatest natural cause of human loss of life (after earthquakes and flooding) and also cause major destruction. They are meteorological events caused by cyclonic activity in the Earth's atmosphere.

The frequency and destructive power of hurricanes, storms and tornadoes noticeably increase in areas where forests have been chopped down. Please take note of this.

Regions in the Volga basin, Siberia, the Urals, the Black Sea coast, the Primorie and Khabarovsk regions, Kamchatka, the Volga-Vyatka region, and the Pribaikalie, Moscow, Yaroslavl and Ivanovo regions are all susceptible to hurricanes, storms and tornadoes.



An approaching tornado.

## A HURRICANE —

is a storm with winds that reach a speed of over 30 metres per second and which wreaks great destruction. They usually occur in August and September.

## A STORM —

has strong, constant winds that reach a speed of 60-100 kilometres per hour.

The storm season is from April to September.

## A TORNADO —

is an atmospheric vortex which is spawned in thunderclouds and is produced when cool air overrides a layer of warm air forcing the warm air to rise rapidly. It often touches down on the earth's surface.

The tornado season generally occurs between March and August though tornadoes can occur at any time of year.

## SAFETY TIPS:

- close all doors and windows on the up-wind side of the building and open them on the down-wind side;
- remove all articles which might be swept away by the wind from balconies and window-ledges;
- if possible, hide in a shelter;
- if caught in an open space lie in a depression, a ditch or a gutter and press yourself firmly to the ground.

# LANDSLIDES

## LANDSLIDES —

are slippery masses of rock, earth or debris which move by force of their own weight down mountain slopes or river banks.



In January 1989 a landslide 2 kilometres long and 300 metres wide occurred in the Gissar Valley in Tadzhikistan. It covered an entire village with a layer of earth from between 15 to 20 metres in depth.

## SAFETY TIPS:

- constantly monitor soil movement, drainage pipes and the sewerage system;
- prohibit explosions or soil excavation in the vicinity of areas subject to landslides;
- protect trees, shrubs and grass in the area and plant trees here;
- erection of various engineering facilities.

**D**uring heavy rains or floods, water saturated clay is eroded from river valleys and carries along with it large quantities of earth together with any constructions or roads which might be in its path. This is a landslide. Landslides rank among the top ten natural disasters in terms of direct material losses. Landslides occur when the natural stability of soil on slopes is disrupted due to natural processes or human interference.

A landslide moves at a speed of dozens of kilometres per hour.

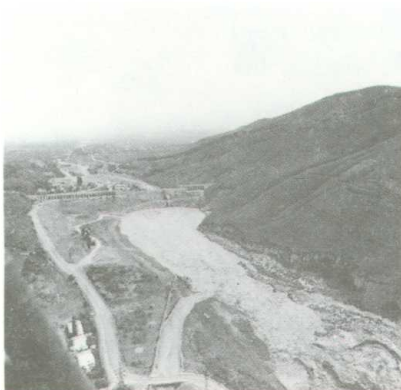
Russian cities which are most susceptible to landslides are: Volgograd, Volsk, Voronezh, Kazan, Kaluga, Krasnodar, Krasnoyarsk, Moscow, Nizhnii Novgorod, Ryazan, Saratov, Sochi, Stavropol, Tver, Ulyanovsk and Ufa.



# MUDFLOW



Construction of a mudflow dam.



This 40 metre high porous dam has blocked one of the frequent mudflows which occur in the Alma-Ata Canyon.

**M**udflows occur as a result of the rapid melting of snow and ice, burst water reservoirs, heavy rainfall or of earthquakes and volcanic eruptions.

Mudflows can reach speeds of 35 kilometres per hour.

Regions which are most susceptible to mudflows are the Northern Caucasuses, the Urals, Altai, the Sayans, Predbaikalie, Primorie, Kamchatka and Sakhalin.

At present mudflows cannot be predicted.

Mudflows can occur gradually or unexpectedly. Cracks or crevices in the ground may indicate a mudflow is imminent and if they are noticed in time it is possible to prepare for this natural disaster and minimize the damage.

## A MUDFLOW —

is a naturally formed flow of water, sand, earth and other debris which forms in mountain river beds

## SAFETY TIPS:

- leave the danger zone;
- leave the building and switch off the gas and electricity supplies;
- if a person is caught in a mudflow all possible efforts should be made to rescue him with ropes and poles.

Pull him gradually towards the edge of the mudflow but do not pull him against the current.

Special protective structures are built to prevent mudflows and protect cities. These include bulkheads to block the flow of solid sewerage and drainage ditches.