Lana

Assignment

Environmental Science

 **Hurricane Patricia in Mexico**

Hurricane Patricia, it was the second cyclone of the highest intensity, which was produced in the western hemisphere and the most powerful in terms of barometric pressure recorded in the world. This happened in 2015, and the rapid increase in winds made it one of the meteorological phenomena that posed the greatest risk to countries in which its effects were felt, among which Mexico and the United States stand out. The rate of intensification of its wind was a record recorded by the US National Hurricane Center. Despite the intense hurricane of Patricia and the force with which he touched the earth in Mexico, a natural phenomenon claimed several lives; however, millions of dollars were required to facilitate search, rescue, and recovery. It is estimated that the damage from the hurricane reached 325 million dollars (Rogers, Robert F., et al, 2015).

**2. Location**

 The wind speed of Hurricane Patricia over the ocean reached 325 km / h. He became the strongest in the history of meteorological observations. Having reached the continent, the wind speed decreased to 55 km / h. In five days, 409 millimeters of rain fell on the territory of Mexico and Texas, which corresponds to half the annual norm and more than the record set in 1949. NASA has published images of the hurricane and some data on its characteristics. The hurricane began last week and reached the west coast of Mexico on Saturday night. The natural disaster was awarded the 5th, highest category, 235 thousand inhabitants of the country were left without electricity. North America was also waiting for a hurricane to enter its territory, but as a result of a collision with a low-pressure area over Mexico, it weakened to the level of a tropical depression. However, the remnants of the hurricane managed to bring heavy rains to the territory of Mexico and the USA, which, according to forecasts, will continue for about a week (*Rogers, Robert F*., et al.2015)

**3. Date and time of the event**

 Hurricane Patricia, who approached the coast of Mexico from the Pacific Ocean, recognized as the most powerful in the history of observations Gusts of wind reach an unprecedented 325 km / h (Interfax-Ukraine). A record low pressure was also recorded at the epicenter of the hurricane; on October 23, it dropped to 880 mill bars (about 660 mm Hg). Previously, the hurricane was already assigned the fifth-highest hazard category on the Saffir-Simpson scale, which is assigned to hurricanes with a wind speed of at least 252 km / h. The epicenter of the hurricane will reach the coast of Mexico in the late afternoon of October 23, local time or in the early morning of October 24 in Kyiv, and will reach at least the second-largest city in the country - Guadalajara, 250 km from the coast. Experts expect the hurricane to weaken to the fourth category on the coast, but warn of possible catastrophic consequences. In particular, waves up to 11.8 m high are expected, as well as flash floods and mudflows.

**4. A detailed description of the event**

 The strongest hurricane that has not yet been seen in the Western Hemisphere is approaching the Pacific coast of Mexico. Mexican National Fund for Natural Disasters requires that a hurricane could cause catastrophic damage already today evening (*Parker, Geoffrey*, et al 2018). The hurricane with the beautiful name "Patricia" in power can be compared with the typhoon "Haiyan". Wind speed will reach up to 325 km / h. Such a force of the wind will be able to lift the plane into the air and hold it there for several seconds. Mexican authorities began evacuating residents. Ports on the Pacific coast are closed. An emergency has been declared in three states. About 400 thousand people may be affected. Special shelters are designed only for 259 thousand. The storm will bring heavy rainfall, floods, and soil shifts.

**5. Geologic Setting**

 Hurricane Patricia struck a dangerous category 5 power on the Pacific coast of Mexico on Friday. The US National Hurricane Center, based in Miami, said the eye of Hurricane Patricia landed on the southwest coast. Patricia had winds of about 270 kilometers per hour touching land near Cuixmala. Patricia is touted as the most powerful hurricane ever recorded on the American continent and was anxiously awaited in western Mexico. Residents of a large portion of the country's west coast, which includes both fishing villages and seaside resorts, posted their homes and provisions on Friday in anticipation of hurricane Patricia (Gutiérrez, Miren, 2018).

Mexican authorities have declared a state of emergency in dozens of settlements in the coastal states of Colima, Nayarit, and Jalisco, including large ports and luxury resorts. Schools closed on Friday in Colima. Patricia will be the second hurricane of the fifth category, which will cover the entire Pacific coast of Mexico, during the collection of detailed data - since 1949. A similar case was recorded in October 1959, when about 1800 people died.

**6. Damage details**

 Despite various assumptions about the true intensity of the winds of Patricia during a landing in Mexico, it is known that the hurricane was extremely strong when it arrived in the country on October 23. The main states affected by the natural impacts were Michoacán, Colima, Jalisco, and Nayarit; places where the authorities decided to create shelters for the victims. A total of about 1,782 temporary shelters were established to help approximately 258,000 people. The Emergency Committee, the Mexican Army, the Navy of Mexico, the National Security Commission of that country and the Red Cross were all part of organizations that were aware of the situation (*Otvos, Ervin G*, 2004). Tourists were evicted from high-risk areas, and commercial activities were suspended. The eye of the hurricane escaped the most densely populated areas of the country, which reduced the risk in the enterprise. It is estimated that at least six people died in Mexico due to Patricia, all in the state of Jalisco.

**7. Social and economic impacts**

 The authorities of Mexico announced the evacuation of local residents and tourists in those areas that were in the way of the elements. In the city of Puerto Vallarta, 28 thousand tourists were evacuated, including 7 thousand foreigners. Mexican President Enrique Peña Nieto said that the country has to overcome difficult moments. On his Twitter, he urged residents not to go outside and follow the instructions of the rescue services. The consequences of the strike of "Patricia" - the most powerful hurricane in the history of the planet - can be disastrous. Thousands of rescuers and the military have already been sent to particularly vulnerable areas, including engineering units equipped with special equipment.

The Mexican Civil Defense Forces have evacuated thousands of tourists and tens of thousands of local residents from coastal areas, with hundreds of shelters equipped to accommodate them. Information on casualties among the population has not yet been reported. Mexico City authorities opened 18 aid collection points for residents of the regions located along the route of Hurricane Patricia. Indifferent citizens can bring antibiotics, bottled water, canned food and clothing there. One of these points began work on Zocalo Square in the historic center of the Mexican capital.

**8. Recovery**

 The characteristics of Hurricane Patricia quickly turned it into a meteorological phenomenon, which implies a significant risk for the countries where it was planned to reach it. This situation prompted the mobilization of more than 5,000 Marines of the Mexican Navy for search and rescue missions. On the other hand, Red Cross volunteers also analyzed what was needed after the impact of the hurricane in Mexico. They made a distribution of humanitarian aid.150 million pesos were allocated to agricultural areas that suffered from Patricia; while 250 million pesos were destined for Jalisco, of which 34 million were directed to affected people. There were also important investments to help with economic recovery. On October 28, 15 Jalisco municipalities were declared disaster zones, and other areas were evacuated by storm. All these preparatory actions resulted in very few casualties and victims, far from the disaster that could have occurred if the government and humanitarian organizations had not acted following the announcement of the arrival of Patricia. Not only has the Mexican Red Cross organized itself in the context of a disaster, but it has also contributed to helping the areas where the hurricane has done damage by mobilizing nearly 3,000 of its volunteers to evaluate the losses in the states of Jalisco and Colima only hours after he made landfall.

**References**

Rogers, Robert F., et al. "Rewriting the tropical record books: The extraordinary intensification of Hurricane Patricia (2015)." Bulletin of the American Meteorological Society 98.10 (2017): 2091-2112.

Parker, Geoffrey, et al. "Effects of hurricane disturbance on a tropical dry forest canopy in western Mexico." Forest Ecology and Management 426 (2018): 39-52.

Williams, A. T., and A. Barugh. "Beach user perceptions at the eastern Yucatan peninsula, Mexico." Journal of Coastal Research 70.sp1 (2014): 426-431.

Otvos, Ervin G. "Beach aggradation following hurricane landfall: impact comparisons from two contrasting hurricanes, northern Gulf of Mexico." Journal of Coastal Research (2004): 326-339.

Gutiérrez, Miren. Data activism and social change. Palgrave Macmillan, 2018.

Klotzbach, P., W. Gray, and C. Fogarty. "Active Atlantic hurricane era at its end?." Nature Geoscience 8.10 (2015): 737.