1. Introduction

Typhoon Morakot (or Typhoon #8) of August 8, 2009, caused significant loss of life and property in Taiwan. As of September 18, 2009, the National Disasters Prevention and Protection Commission has reported 639 identified and 62 unidentified deaths; 58 persons are still missing. An economic loss of over US$3 billion has been incurred. Morakot was the most damaging typhoon to make landfall in Taiwan in half a century.

Typhoon Morakot had a maximum wind speed of 40m/s and lowest central pressure of 945 kPa. It was classified as a medium strong typhoon (equivalent to a Category 2 hurricane). It brought a new rainfall record of 2777 mm at Alishan (previous rainfall record of 1736 mm was set by Typhoon Herb in 1996). Morakot landed at Hualian, the eastern part of Taiwan, and left at Taoyuan on the western coast. The path of Morakot, its clouds at peak, and the accumulated rainfall from August 7 to August 9, are shown in Figures 1-1 to 1-3, respectively.

The typhoon passed through the central and northern parts of Taiwan. However, torrential rains were primarily concentrated in the south, thus the most heavily damaged areas were in this region. Flooding and landslides led to various types of damage to the infrastructure and geosystems. A total of 44 bridges and 138 highway sections were damaged. Figure 1-4 indicates the areas that were most seriously affected by this disaster.

The reconnaissance trips were made from September 2 to September 6, 2009. Some parts of the disaster area were inaccessible due to the breakdown of the roads and bridges. Reconnaissance sites were chosen along Route 18 (Chiayi County) and Routes 20, 21, and 27 (Kaohsiung County), which reflected typical types of failures due to Typhoon Morakot.

Web References
National Disasters Prevention and Protection Commission
http://88flood.www.gov.tw/

Central Weather Bureau
http://www.cwb.gov.tw/

Japan Meteorological Agency
http://www.data.jma.go.jp/fcd/yoho/typhoon/route_map/bstv2009.html

Failures due to 2004 Mindulle Typhoon
http://www.civil.columbia.edu/ling/mindulle/

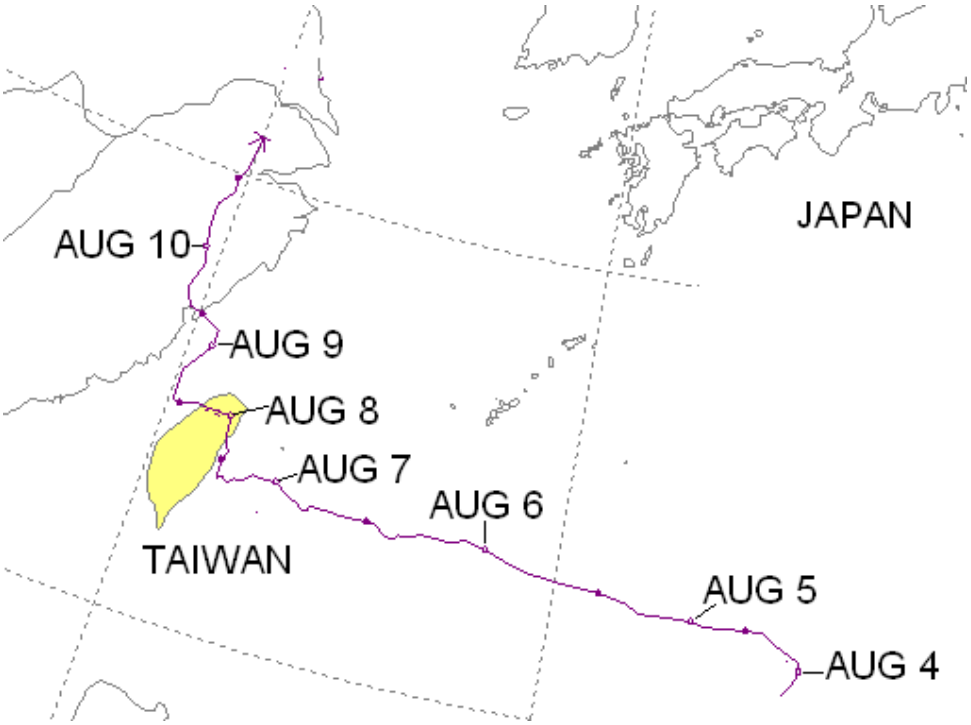

Figure 1-1. Path of Typhoon Morakot (modified from Japan Meteorological Agency).

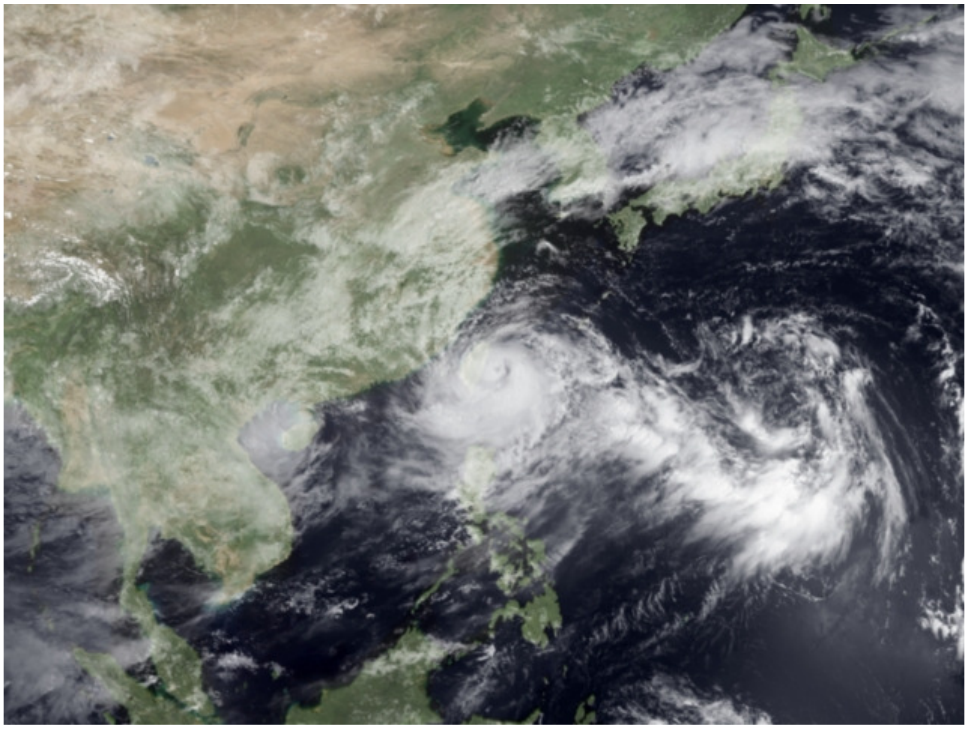

Figure 1-2. Satellite view of Typhoon Morakot on August 7, 2009 at 0130Z (source: www.nnvl.noaa.gov).

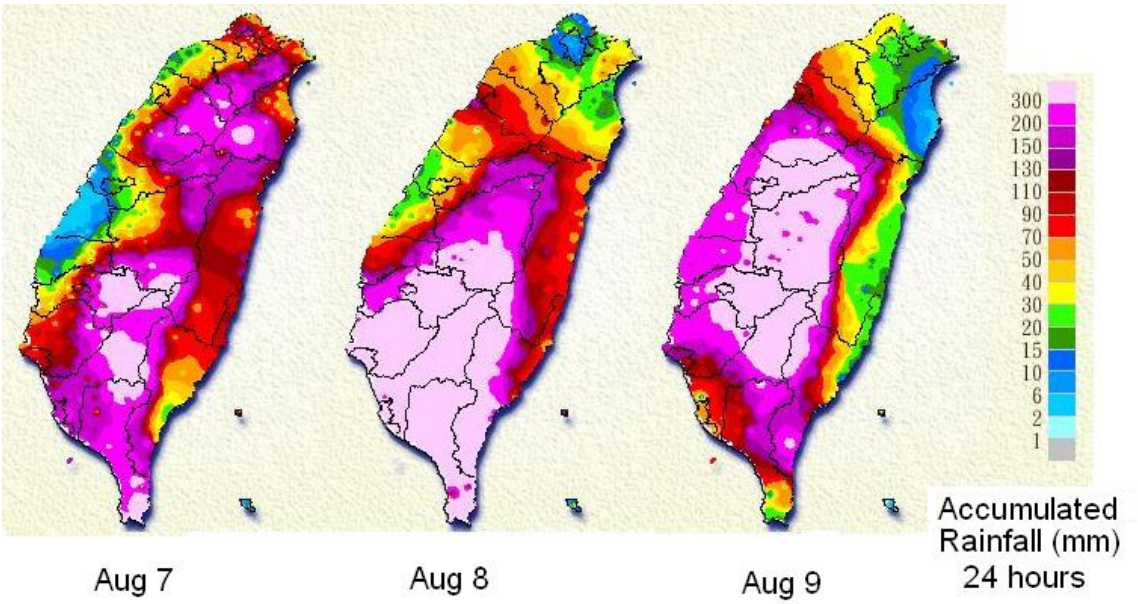

Figure 1-3. Accumulated rainfall due to Typhoon Morakot, August 7 to 9, 2009 (modified from Central Weather Bureau).

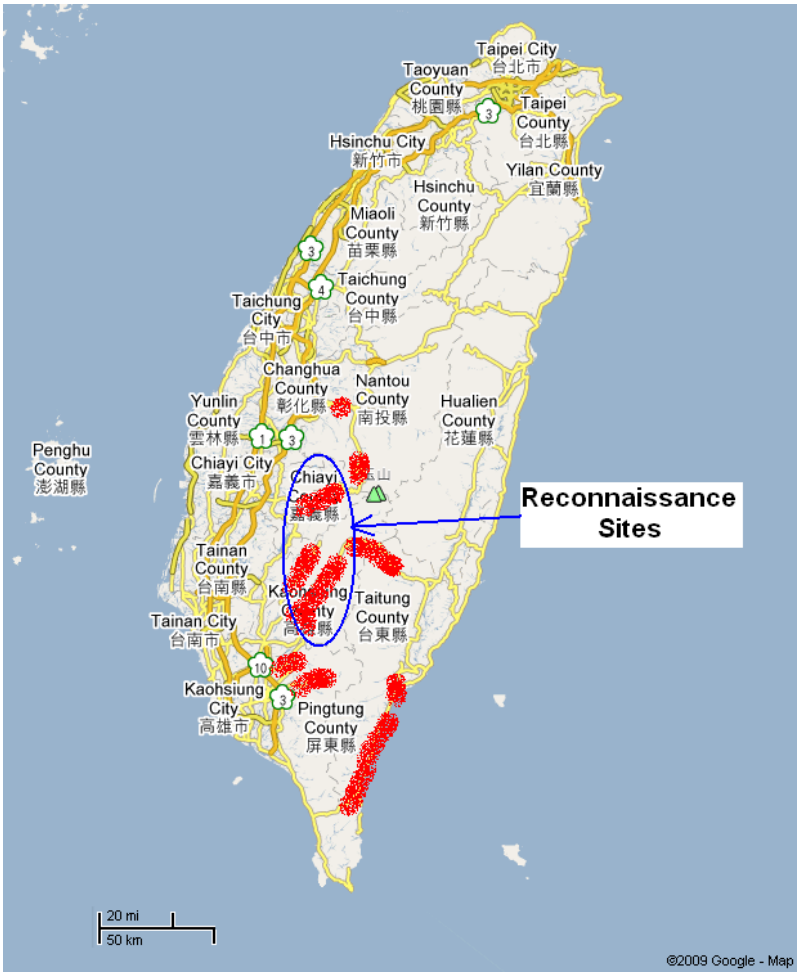

Figure 1-4. Major disaster areas due to Typhoon Morakot.