Name:		Index Number:		Class:	

DUNMAN HIGH SCHOOL
Preliminary Examinations
Year 6

GEOGRAPHY 9730

(Higher 2)

Paper 1

Tues 17 Sept 2013
3 hours

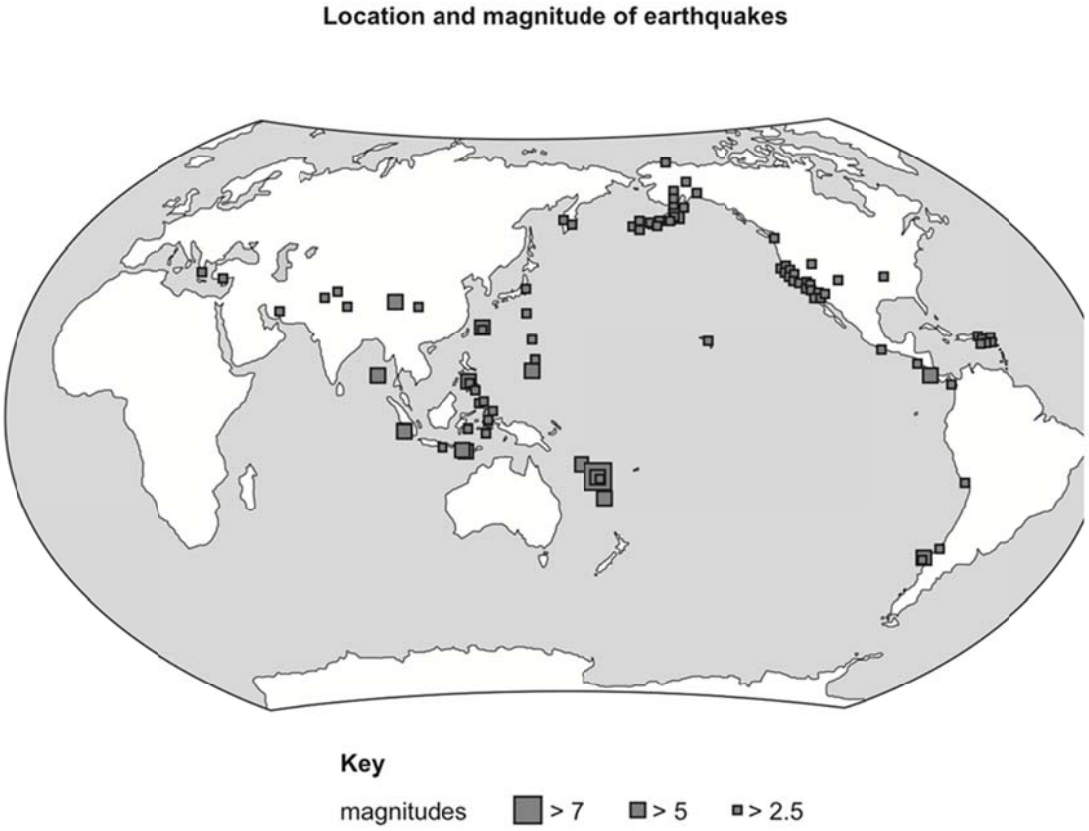
Additional Materials:
Answer Paper

INSERT 1

READ THESE INSTRUCTIONS FIRST

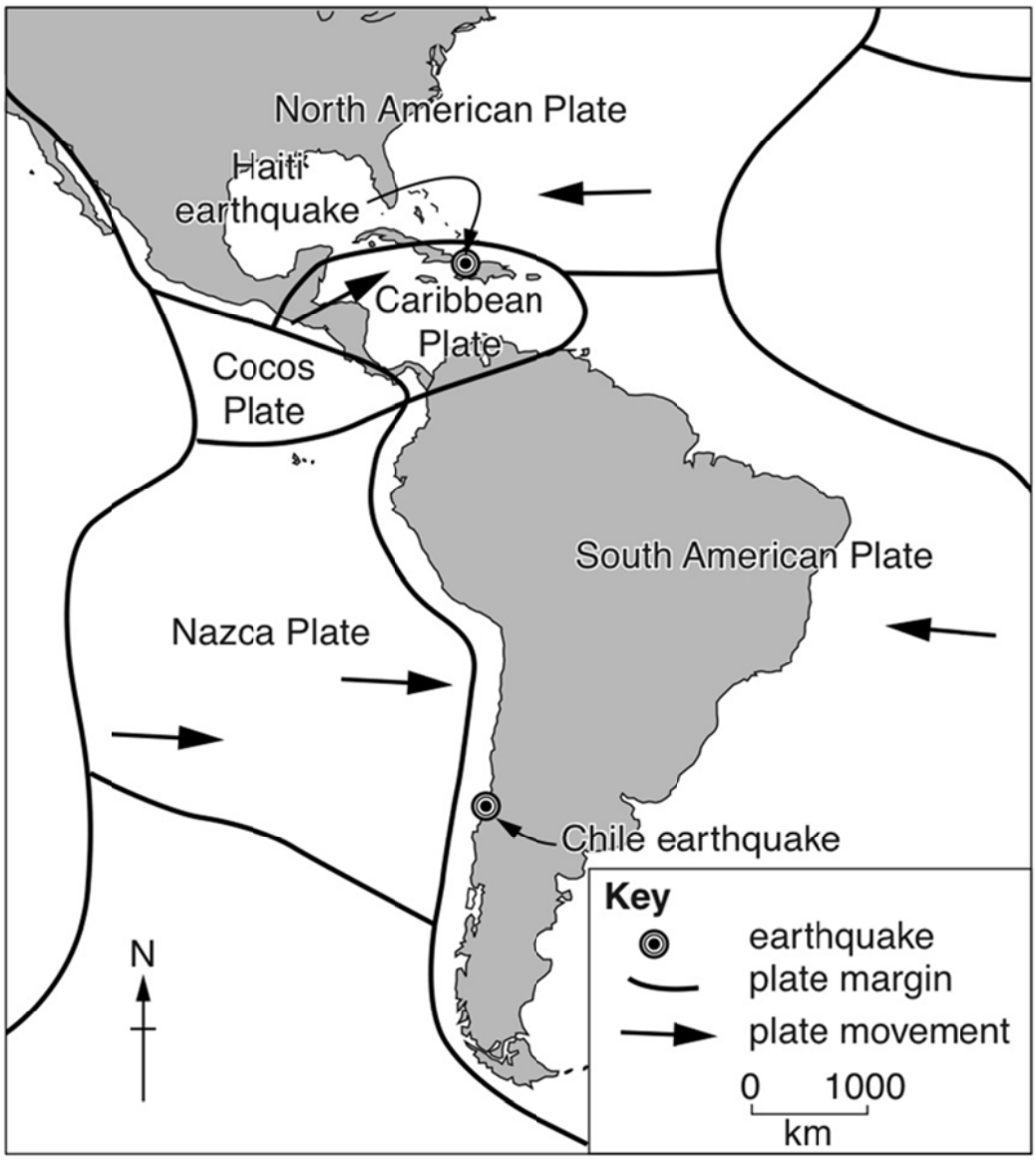
This Insert contains all the Figures referred to in the question paper.

Fig. 1a for Question 1



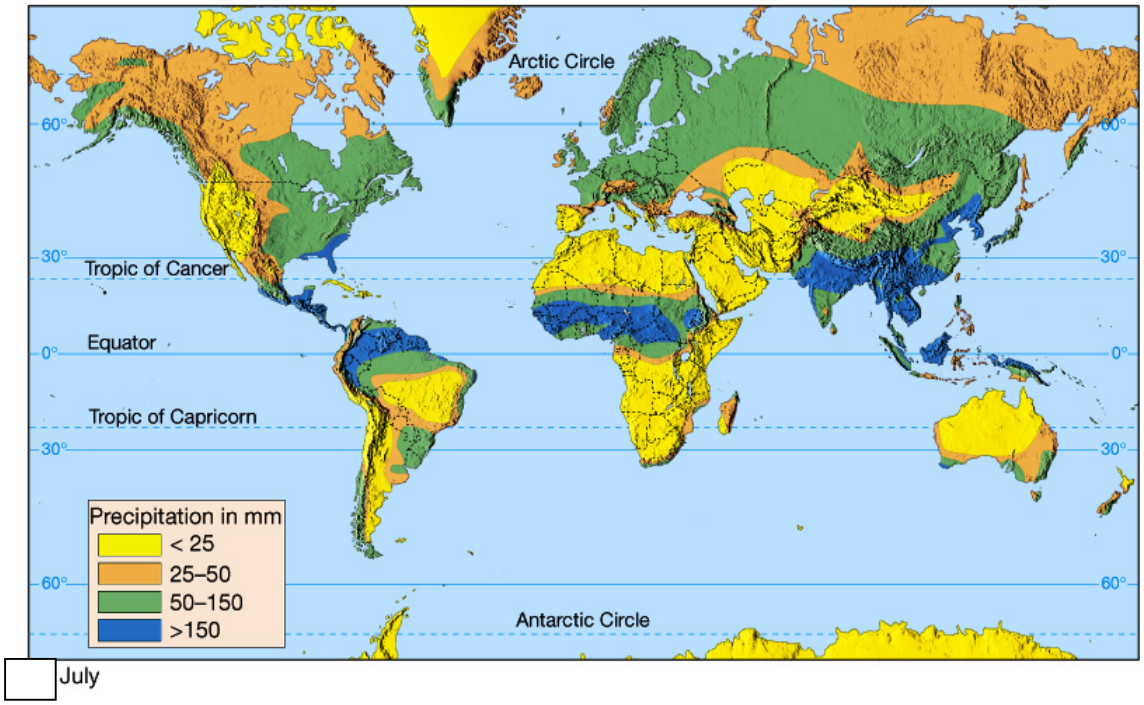
Location and Magnitude of Earthquakes

Fig. 1b for Question 1



Chile and Haiti Earthquake

Fig. 2 for Question 2



Global distribution of monthly precipitation for the month of July (in mm).

Fig. 3 for Question 3

	Upstream site	Downstream site
Average width (m)	5.223	8.575
Average depth (m)	0.565	0.877
Slope (°)	0.5	0.5
Tangent (gradient) of slope	0.009	0.009
Hydraulic radius	0.484	0.756
Coefficient of roughness	0.04	0.03
Estimated bankfull discharge ($m^3 s^{-1}$)	2.904	9.988

Photograph A for Question 3

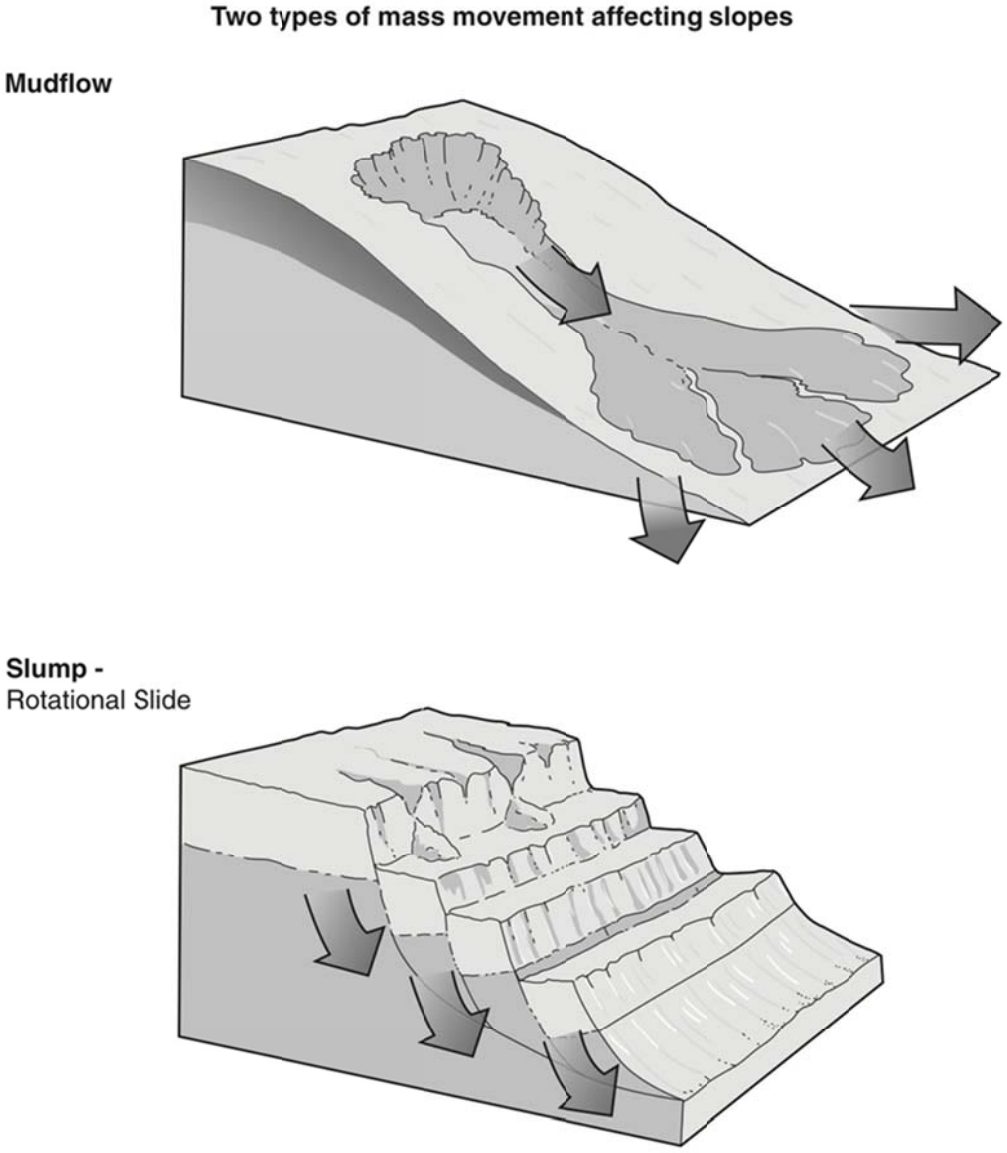
Location of Upstream Site

Table 1 for Question 4

year	location	nature of disaster	deaths
1883	Krakatoa	island volcano, tsunami	36,000
1900	Galveston, USA	hurricane, storm surge	6,000
1908	Messina, Italy	earthquake	85,000
1920	Gansu, China	landslides caused by earthquake	200,000
1927	Tien Shan, China	earthquake	200,000
1951	London	smog (smoke, fumes and fog)	2850
1970	Bangladesh	tropical cyclone, storm surge	300,000
1972	Hong Kong	landslips	138
1974	USA (Tornado Alley)	148 tornadoes in April	300
1980	Mt St Helens USA	volcano	57
1985	Nevado del Ruiz (Colombia)	volcano	25,000
1986	Bangladesh	cyclone	2000
1989	California	earthquake	62
1995	Kobe, Japan	earthquake	5000
1995	Monserrat	volcano	20
1998	Nicaragua	hurricane	3800
2003	Algeria	earthquake	2250

Number of deaths from natural hazards

Fig. 4 for Question 4



Two types of mass movement

Fig. 5 for Question 5 Either

Predicting volcanic eruptions

Satellites spot volcano ready to erupt

A volcanic eruption has been successfully predicted with the use of satellites. Researchers disclosed yesterday that they had detected the impending eruption of Pacaya, in Guatemala, a week before it happened.

The team, using satellites with infra-red detectors, picked up a heat signal on May 13 indicating that hot magma was bubbling towards the surface. The volcano erupted on May 20 sending an ash cloud over Guatemala City and the airport 13 miles away.

Andrew Harris, of the Open University, said: "We saw it coming from space. To date this has not happened before."

The breakthrough may lead to the establishment of a worldwide automatic forecasting system for the 600 active volcanoes and many others considered potentially active.

The team also detected the eruption of a volcano in the remote Galapagos islands three hours before it began on September 15. The early warning gave experts on the ground time to move wildlife. The signals were picked up from the satellites by Chris Okubo, of the University of Hawaii.

The team also spotted the eruption of Popocatepetl, near Mexico City, from space. The satellites detected a moderate eruption on the morning of November 24, 1998. Local ground-based teams recorded the same event and sounded the alarm one minute earlier. But many parts of the world where volcanoes could burst into life are too treacherous to have trained staff in place. Dr Harris said: "Some places are just too poor and have too many volcanoes."

The satellite system, even if it spots an eruption only as it occurs, may give emergency services vital hours or days to get people cleared from an impending lava flow.