

## **Reply on interactive comments of anonymous Referee #1**

Reply on the major comments:

“How and what kind of satellite techniques /data have been used”

We have used data from the Catalog of Tropical Cyclones and Tropical Disturbances of the World Ocean for 1983–2005 (Pokrovskaya and Sharkov, 2006). This issue is based on the next satellite techniques and data sources: SSM/I (Special Sensor Microwave Imager) - satellite passive microwave radiometers (NASA), and data from NOAA satellites (temperature and water vapor distributions); GMS-5 (Geostationary Meteorological Satellite) - visible and infrared sensors - JMA (Japan Meteorological Agency).

“Estimation of the influence of distances on the records”

The particular feature of the investigated phenomenon is so far distant (up to  $10^4$  km) display of its influence. The fact and absence of clear distance dependence testify to influence through the atmosphere and possible ionosphere of the Earth, page 941, line 2.

“Information about depth of installed laser strain meter and estimation of record noises”

Laser strain meters have been installed on the depths 2-15m under earth surface. The shallow (2-3 m) but long-path (100-500 m) instruments installed at Fryazino underground testing site (Moscow region) allow the record noises similar to deep (15 m) ones to be obtained (Dubrov and Karmaleeva, 1976). The resolution limit of the applied strain meters is  $dL/L \approx 10^{-12}$ ; record noises due to meteorological interferences such as winds, precipitations, etc., page 938, line 15 are 1-2 orders higher. The detailed characteristics and schemes of strain meter installations are presented in reference (Dubrov et al., 1998).

“Statistical analysis . . . can be useful in conviction of results”

In our study, we analyze 23 earthquakes and 13 hurricanes that have happened in five active regions of the World Ocean. The available event quantity of course is not sufficient for convincing statistical analysis. Nevertheless, some statistical evaluations, which may prove not casual nature of investigated phenomena, can be made. The probability  $P$  of two unrelated occurrences (e.g. earthquake and hurricane) that happened on time period  $t_p$  can be evaluated as  $P = (t_p / T)$ , where  $T$  is the whole period of their observation. For two of the most powerful occurrences on 2003: Hokkaido  $M = 8.3$  earthquake, 25 September and super-typhoon MAEMI NWP0315, 03-13 September we can obtain  $P = (17d / 365d) < 1/20$  that means the probability  $(1 - P)$  of these events correlation to be higher than 95%. In such a manner, approximate probabilities for other earthquake and hurricane occurrences in consideration can be evaluated. The thorough statistical analysis will be available after the sufficient data accumulation – it is the task, which is under way now.

“Adding references in the next places:”

page 936, line 18 - The stages of tropical disturbance evolution (Pokrovskaya and Sharkov, 2006): tropical low is the initial separated area with surface low pressure; then tropical depression, tropical storm, and typhoon (hurricane) develop consequently.

page 941, line 14 - There are many publications and studies dedicated to earthquakes and hurricanes interaction (Dolgikh et al., 1982; Morozova, 2006; Yaroshevich, 2010).

Reply on the minor comments:

“Check . . . references in the text”

page 942, line 11 - (Pokrovskaya and Sharkov, 2006)

“Some abbreviations are not defended”

page 943, line 23, SW - South West (SW)

Fig.2 - wind velocity . . . (left column of the diagram in Fig. 2) and epicenter drift velocity (middle column of the diagram) - explanations in text: page 942, line 15

“Keep same style for Fig. 2 (right) and Fig. 4”

- Fig. 4 is to be upgraded

“Improve quality and description of Fig. 5 (b,c)”

- Fig. 5 (b,c) is to be improved

“Add information about earthquakes in Fig. 6”

- Japanese (Hokkaido 3646, 3658, 3701; Table 2) and Altai (Central Russia 3722, 3763, 3763; Table 2) earthquake centers

The authors express their gratitude to Referee #1 for his attentive studying our manuscript and number of valuable comments that we should take into consideration.

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