2012と2013年の俳句に現れた東日本大震災の人間社会的影響
The Great East Japan Earthquak’s Impact on Human Society as Described in Haiku of 2012 and 2013

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1.はじめに

2011年3月11日に発生したマグニチュード9.0の地震は、巨大な居住地の破壊や多くの人命の奪いにより、人間社会に深刻な影響を与えた。この災害による心理的影響はまだ進行中である。気仙沼の沿岸居住地の破壊は、人々だけでなく地域社会の心理的支援をも失ってしまった。地震の前に人々は豊かな海と自然の豊かさで生計を立てていた。地震と津波は深い悲しみと痛みを残した（青木、藤田、熊谷2014）。 1-2年後でさえ、多くの人々がまだ重傷で苦しんでいる。被災した桜が咲き、被災地の復興が始まり、ボランティアと犠牲者が絆を深め、希望を見出し、前進し続け、再建された魚市場に魚が陸揚げされても、 完了にはもっと時間がかかる（写真）。都市の現在の喧騒は、外部からの労働者とその乗り物によって引き起こされる。大量の資本が投資されているが、これがいつまで続くか、誰にも分からない。この投資終了すれば、人々は観光と漁業で日常生活を再開するであろう。

この災害の影響を記録するために、2012年7月29日気仙沼では俳句会を行い、内外から1752の俳句を収集した（気仙沼俳句協会2012）。そして、2013年7月28日、1734俳句を集めた。多くのボランティアと寄付がこの俳句会議を支援した（気仙沼俳句協会2013）。ここでは、俳句に残された影響について紹介する。

2.研究の方法

一般的に、俳句の理解は、災害の知識と俳句の選択の嗜好によって異なる。そこで、2つのタイプの回答者を採用した。災害地域の被災者と他の地域の者が俳句を読んで、災害俳句を選んだ。

3.結果

2012年、被災者災は、642の俳句（表1）を選択した。しかし、これらの俳句のうち98件は他の地域の回答者によって選ばれなかった。一方、他の地域の回答者は680の俳句を選んだが、そのうちの136件は被災者は選択しかった。だから災害俳句の選択は地域によって異なることを示した。これは、災害時の知識が両者で異なることを示す。また、唯一人の回答者によって多くの俳句が選択されている（表2）。これは個々人の災害に関する知識の違いを示す。被災者は2013年に370句を選択し、その他の地域では494句を選択した。2年間の俳句の総数に大きな差はないので、災害俳句は1年で減少したことを示す。選ばれた俳句は大部分が悲劇的な出来事を示したが、いくつかはカツオの陸上の楽しさを示した。

4.統計分析

2012年から2013年にかけて、災害俳句の割合は、全回答者で統計的有意水準0.01で減少した（表3）。災害俳句は認識した人の数の全てのレベルで減少した（表4）。

5.回答者間の選択の詳細な比較

一般的に、俳句の評価は、災害の経験と俳句の嗜好に影響される。選定結果は多様性が存在するが、10人以上が選らんだ俳句は、2012年には157句、2013年に45句であった。この実験で災害俳句と言えるものを表5と表6に列挙した。

6.結論

6.1俳句は、2012年の俳句で157句、2013年に45句が災害を記憶している。

6.2俳句の評価は、被災地の知識と俳句の嗜好の影響を受けていた。

6.3多くの人々に共感できる俳句を認め、その俳句を列挙した。

謝辞：気仙沼地区俳句協会、国際俳句交流協会、リチャード・ジャンボール氏に感謝する。

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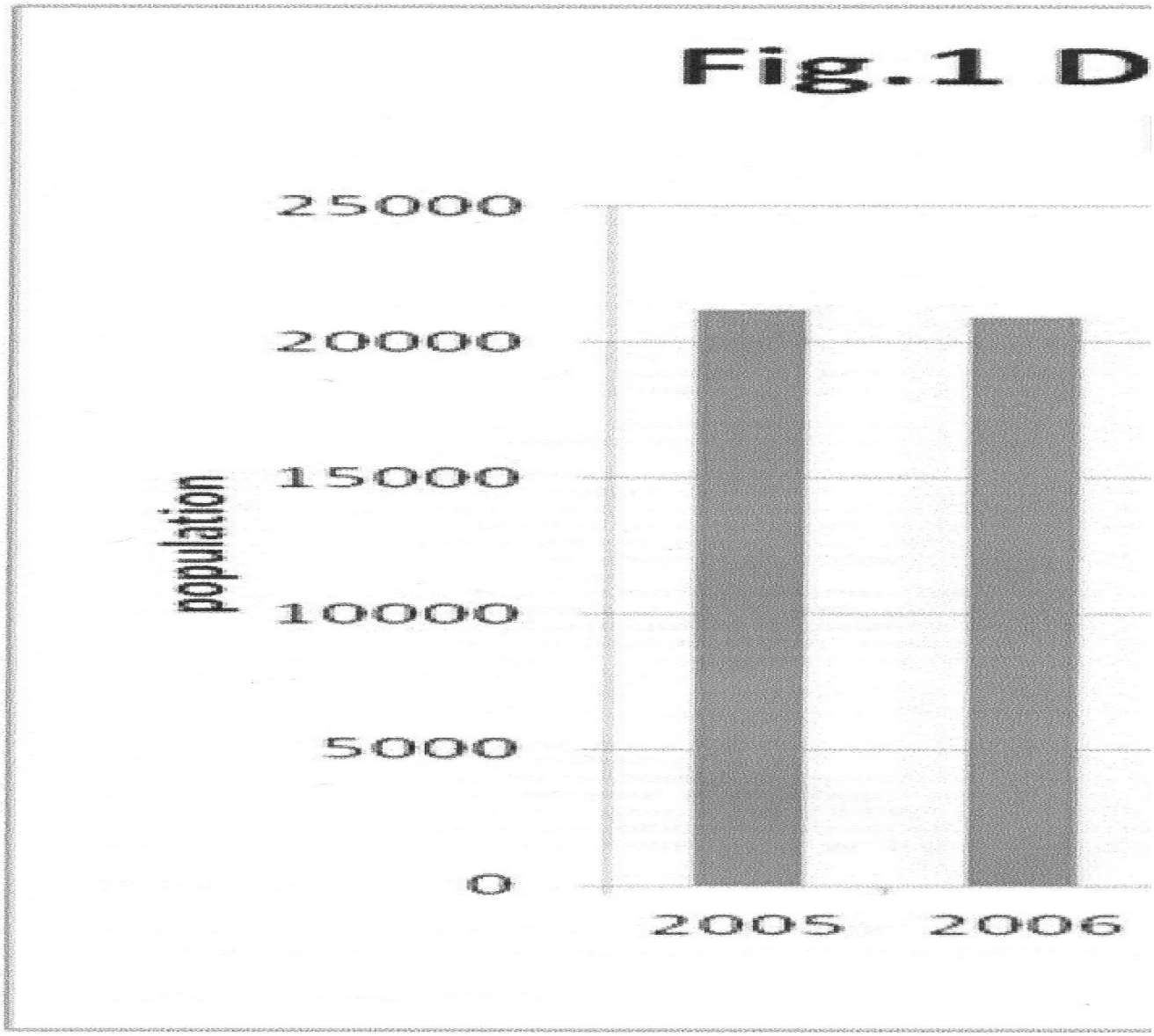
キーワード：東日本大震災、俳句、2012ー2013年
Keywords: The Great East Japan Eathquak, haiku, 2012-2013



CHANGING PROPERTIES OF ARCHITECTURE BY MAJOR EARTHQUAKES THE FATIH MOSQUE, ISTANBUL, TURKEY

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Fatih Mosque was built (1462 –1470) Fatih Sultan Mehmet (Mehmet II) by the chief architect Atik Sinan. It is understood from the historical knowledge that; Fatih Mosque, one of the oldest and most important religious monuments of Istanbul, had to be renewed many times due to natural events like storms and hurricanes or manmade incidents such as fire. At the earthquake that happened in May 22, 1766, the main dome entirely collapsed, the walls heavily damaged, Imaret (soup kitchen) and the madrasas were ruined.The mosque was evaluated as irreparable and was decided to be rebuilt at the same place with a different plan and was started to be built in 1767. Fatih Mosque continued being affected by earthquakes and following the earthquake in July 10, 1894, the last impact was the earthquakes Kocaeli and Duzce in 1999. The major physical damages were cracks at the domes, minarets, tombs and the fountain yard and dislocation of the stones at other buildings of the complex. Fatih Mosque was renewed and consolidated. Maintenance was barely finished in 2013 and the mosque was reopened. Nowadays, the amendments at old madrasas and the walls that include the fountain are still in progress. In this study, in light of all information (references, pictures, etc.), the differences between the first and the last plan of the mosque and the negative or positive relations between the main structure and other additional parts will be evaluated. Furthermore, other geological and tectonic factors that cause Istanbul's important historical monument to be affected this much by earthquakes will be discussed. After all, the important fact is that; both the rebuilding and repairs supported by serious scientific studies done in recent years, provided a major contribution for this great monument in reaching to present with all its glory.

Keywords: Fatih Mosque , Istanbul, Massive Earthquakes

CFD Modelling of the Local Effects of Caldera, Crater Walls and Windfield Variations on Trapping Potentially Harmful Volcanic Gases

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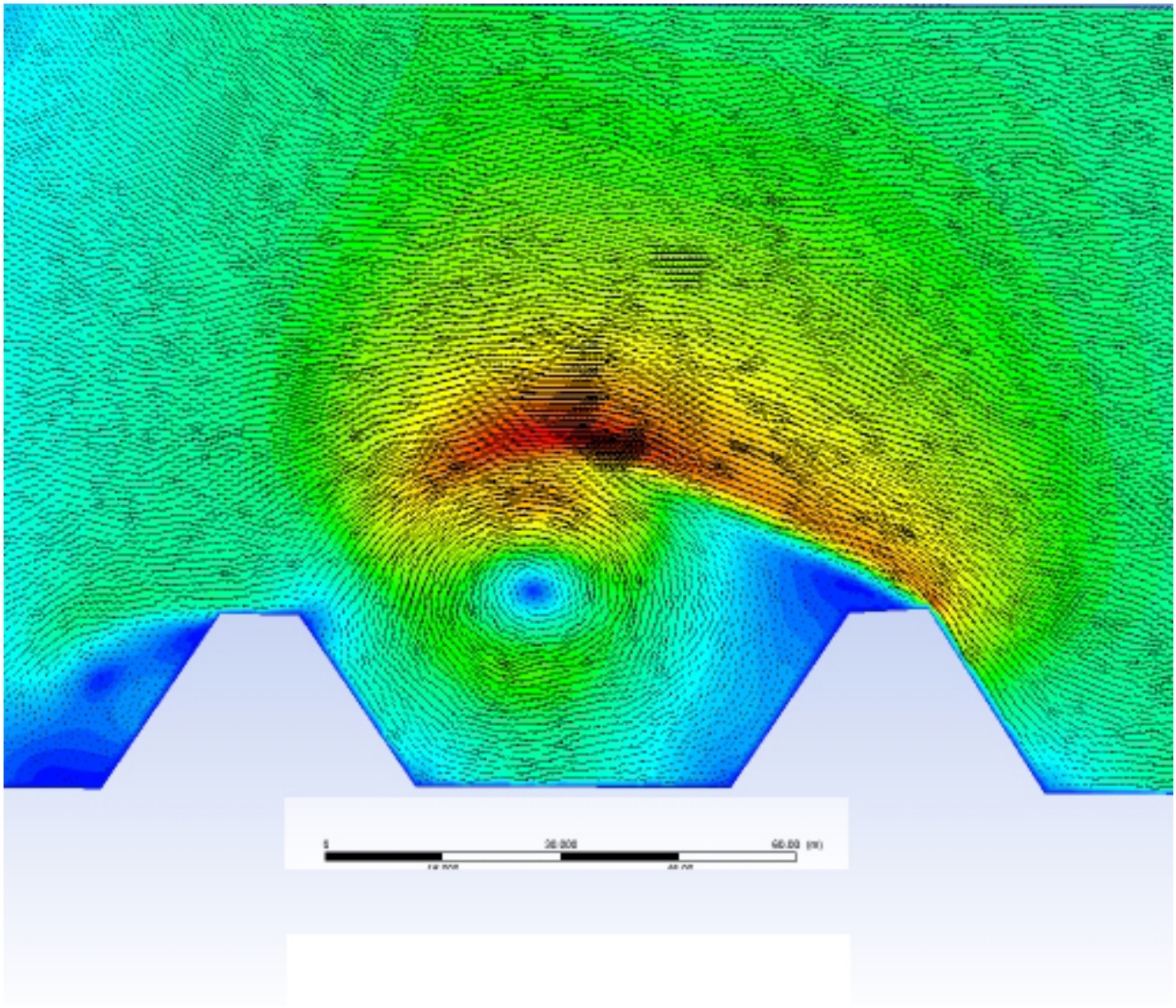
In the recent decades, progress in affordable computing capacity and the development of reliable computational fluid dynamics (CFD) solutions to solve high-resolution engineering issues have opened the possibilities to simulate environmental micro- to meso-scale fluids and solid-fluid processes with ease at an ever decreasing cost.
In the present contribution, the author assesses the role of volcanic crater morphometry on different windfields, in order to better understand the hazards that gases pose to local inhabitants and tourists. Indeed, eco-tourism and adventure tourism is bringing an ever increasing number of non-locals to various volcanoes, which aren't always sufficiently instrumented (i.e. the Kelut or Semeru and Tengger Caldera in Java, Indonesia).
The method uses the fluid dynamic solution FLUENT, recognized as one of the best and most reliable engineering software for CFD computing. The computation domain is a 2D 100 m length x 100 m height with the boundary conditions being the ground using consolidated ash material, the "outlets" controlled by pressure variation and the inlet controlled through a velocity field. The ground represents the caldera walls, which have been grown and reduced from 5 m height to 50 m height in order to experiment the effects of a change in the caldera/crater floor. The velocity field was also experimented with velocities from 10 m.s-1 to 30 m.s-1.
The results have shown that the velocity field variation and the size of the caldera/crater have a direct incidence on the formation of dynamic eddies inside and outside the crater/caldera. Flow separation is most likely to occur at higher wind-speeds and deeper caldera/craters also create pool effects where rotating eddies can trap volcanic gases.
This simulation does not take into account the temperature inversions that often occur in topographic depressions, creating pools of cold air trapped in the topographic low. The air is considered to be at a constant temperature with a limited effect of ground heating from radiation.

Keywords: volcanic gases, hazards, computational fluid dynamics, volcanic vent, caldera, crater



Evolution Mechanism of Karst Sinkhole in Wuhan City, China

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Based on analyzing of 29 karst sinkholes in Wuhan City, China, their system structure was determined from three elements, i.e. karst, cover and groundwater. The sinkholes mechanism of rainfall, drilling and pile constructing importing karst system was discussed by field monitoring and numerical simulating. The results are as follows:(i) the geological conditions developing sinkhole include of three aspects, cover structure is upper clay and lower sand, shallow karst is developed, and hydraulic connection between pore water - karst water is good; (ii) In natural environment, the cave in cover soil has two developing stage that is from hydraulic corrosion to stress failure;(iii) Drilling and pile constructing often trigger sinkhole that is from two aspects of structure changing, i.e. the covering soil has high hydraulic gradient at the moment of drill connecting pore water and karst water, the head difference of two groundwater is more than 15m during pile constructing.

Keywords: Covered karst, Sinkhole mechanism, Natural environment, Human activity

Kamchatka and North Kurile Volcano Explosive Eruptions in 2016 and Danger to Aviation

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There are 36 active volcanoes in the Kamchatka and North Kurile, and several of them are continuously active. In 2016, five of the Kamchatkan volcanoes (Sheveluch, Klyuchevskoy, Bezymianny, Karymsky and Zhupanovsky) and three volcanoes of North Kurile (Alaid, Ebeko and Chikurachki) had strong and moderate explosive eruptions. Moderate gas-steam activity was observing of Kizimen, Avachinsky, Koryaksky, Gorely, Mutnovsky and other volcanoes.
Strong explosive eruptions of volcanoes are the most dangerous for aircraft because they can produce in a few hours or days to the atmosphere and the stratosphere till several cubic kilometers of volcanic ash and aerosols. Ash plumes and the clouds, depending on the power of the eruption, the strength and wind speed, can travel thousands of kilometers from the volcano for several days, remaining hazardous to aircraft, as the melting temperature of small particles of ash below the operating temperature of jet engines.
The eruptive activity of Sheveluch volcano began since 1980 (growth of the lava dome) and is continuing at present. Strong explosive events of the volcano occurred in 2016: on 10, and 29 January, 18, and 27 February, 23 March, 02 April, 02 May, 18 September, 09 and 19 December: ash plumes rose up to 10-12 km a.s.l. and extended more 2000 km to the different directions of the volcano. Strong and moderate hot avalanches from the lava dome were observing all year. Activity of the volcano was dangerous to international and local aviation.
Explosive-effusive eruption of Klyuchevskoy volcano lasted from 03 April till 06 November. Strombolian explosive volcanic activity began from 03 April, and on 23-24 April a lava flow began to effusing along the Apakhonchich chute on the southeastern flank of the volcano. Vulcanian activity of the volcano began from 02 May. Ash plumes rose up to 7-8 km a.s.l. and extended more 600 km to the different directions of the volcano. Activity of the volcano was dangerous to international and local aviation.
Extrusive-explosive-effusive eruption of Bezymianny volcano began from 05 December (extrusive phase) and probably continues (effusive phase). A moderate explosive phase probably occurred on 15 December –gas-steam plume containing some amount of ash drifted for about 118 km to the west of the volcano. Activity of the volcano was dangerous to local aviation.
Karymsky volcano has been in a state of explosive eruption since 1996, and this eruption finished on 10 October 2016. Ash plumes rose up to 4-5 km a.s.l. and extended more 300 km mainly to the eastern directions of the volcano in January-February. Activity of the volcano was dangerous to local aviation.
Explosive eruption of Zhupanovsky volcano began on 06 June, 2014, and finished 20 November, 2016. Explosions sent ash up to 8-10 km a.s.l. on 19, 21, and 24 January; 05, 07, 09, and 12 February; 24 March, and 20 November. Ash plumes extended for about 550 km mainly to the eastern directions of the volcano. Activity of the volcano was dangerous to international and local aviation.
Explosive-effusive eruption of Alaid volcano occurred from 01 October, 2015, till 10 August 2016. Ash plumes extended for about 260 km from the volcano in February-April. Lava flow effused on the south-western flank of the volcano (for about 400 m). Activity of the volcano was dangerous to local aviation.
The moderate explosive events at the Ebeko volcano with burst of ash up to 2.6 km a.s.l. occurred on 19-20 October, 08, 11-17, 19-20 and 28-30 November, 8-10, and 12-14, 17, 19-27 and 31 December.

Activity of the volcano was dangerous to local aviation.
The eruptive activity of Chikurachki volcano occurred on 28-31 March; 27 July; 17-19, and 30 August. Explosions sent ash up to 4 km a.s.l., and ash plumes drifted to the different directions from the volcano. Activity of the volcano was dangerous to local aviation.

Keywords: volcano, eruption, Kamchatka and Kurile

