





The Eyjafjallajökull eruption and tourism:

Report from a survey in 2010

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Cover picture: Tourists enjoying the eruption in Eyjafjallajökull. Photo: Virgile Collin-Lange

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1 Introduction

In this report, the results from a survey of international tourists in Iceland undertaken during the summer of 2010 are documented. The survey was intended to reveal whether the eruption of Eyjafjallajökull, which started in April and lasted until early June 2010, had led tourists to reorganise their travels. As an academic project, it was based on theories of risk and tourism and aimed at increasing the understanding of the role of risk in the decisions and planning of tourists.

As it unfolded, the highly explosive eruption in Eyjafjallajökull was not surprisingly viewed with great concern by the Icelandic tourism sector. Its precursor – the relatively small Fimmvörðuháls eruption – started on March 21st and drew crowds of onlookers, both domestic and international. The activity had died down on the 13th of April, but a much larger and more disruptive eruption started soon after within the ice-filled main caldera of Eyjafjallajökull. Enormous quantities of tephra were produced, both due to the location of the crater in a glacier and the ensuing rapid cooling of the magma, but also because of the chemical properties of the magma that made it more explosive than that of the Fimmvörðuháls eruption (Davies *et al.*, 2010).

The tephra was soon distributed far and wide by high-altitude winds. The ensuing disruption of air traffic throughout Europe is well known and indeed became the largest event of its kind. As for Icelandic tourism, many foreign visitors who had already planned a trip to the country during summer called it off, even though flights soon resumed. Worried about the impact of the eruption for this important economic sector, the tourism authorities embarked on an extensive media campaign in all major markets. The extent of cancellations and the reasons behind them were not much researched, however.

Yet there were also those who visited Iceland nevertheless and were not deterred by the volcanic eruption or its aftermath. For some visitors the country seemed to have become an even more exciting destination as a result of these events. Predictions of a catastrophic fall in arrivals were not realised.

The survey reported here was aimed at those who did visit Iceland. A short, self-administered questionnaire, consisting of open as well as pre-coded questions, was designed and pre-tested in Reykjavík in mid-June (see Appendix). As well as finding out whether the eruption had really had much impact on the respondents, either in terms of their travel plans before and during the Iceland trip or their general view of Iceland as a tourist destination, the questions probed their awareness of risks and whether any special

precautions might have been taken. Following some adjustments, and translations from English into German and Spanish, it was presented by one of the authors (Mustonen) to a random sample of foreign students at various locations in Iceland during late June and early July. After a short introduction about the purpose of the survey, the respondents were asked to fill in the questionnaire, the researcher providing guidance and clarifications if needed.

In this report, the profile of the respondents will first be outlined. Travel patterns and impacts of the eruption are then elicited, as well as risk awareness and knowledge. Finally, some conclusions are drawn regarding the significance of the eruption for tourism in Iceland. The report does not discuss extensively the theoretical foundations and broader implications of the research project in terms of mobility, risk and tourism. For this, the reader is directed to conference papers and journal articles that have already been published or submitted for publication by the research team (Benediktsson, Lund & Mustonen, 2010; Benediktsson, Lund & Huijbens, 2011; Lund & Benediktsson, 2011).

2 A profile of the respondents

The respondents were approached at various popular tourist places. Almost a third of these were found in the centre of Reykjavík, but the research assistant (Mustonen) also travelled widely outside the capital along the 'ring-road', but including regions away from the 'ring road', such as Snæfellsnes and the Westfjords. Most foreign travellers do actually spend some time in Reykjavík during their Iceland trip, and strictly speaking this geographical reach of the survey would not have been necessary in order to get a representative sample of this population, but it was also meant to reach those who potentially were avoiding the eruption-affected areas.

A total of 326 questionnaires were collected. In these, 168 respondents (52%) were female and 156 (48%) male. The median age of respondents was 37, but the age distribution was somewhat uneven, with the largest age cohorts in their late 20s and early 30s on one hand, and early 50s on the other (Figure 1). Life cycle considerations play a part here: Couples with young children are probably less likely to choose Iceland as a vacation destination than either young and/or childless people or older people, who also may have higher disposable incomes.

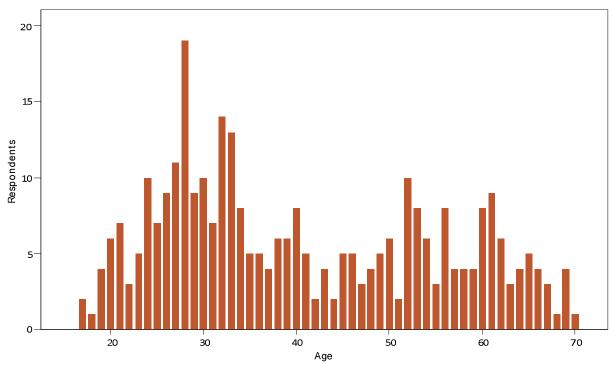


Figure 1: Age distribution of respondents

Almost half of the respondents, or 49%, were travelling in the company of a spouse and/or other family members, but only 18 (5.5%) were travelling in a company of strangers in an organised tour (Figure 2). This is indicative of the high level of 'independent' travel in

Icelandic tourism, where itineraries are decided upon by the travellers themselves, as will be discussed further in the next chapter.

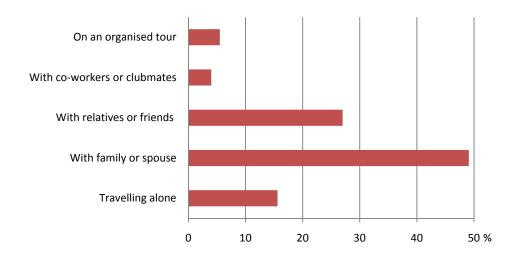


Figure 2: The travelling party

A wide range of nationalities was reported. Most of the respondents came from Germany (23%) followed by visitors from France (14%), USA (12%), Austria (5%) and Switzerland (4%). The high proportion of visitors from Central Europe (Figure 3) concurs reasonably well with available information about the origin of visitors to Iceland during the summer high season (Iceland Tourist Board, 2010; Guðmundsson, 2010a, 2010b), although North America and Southern Europe are somewhat overrepresented whereas fewer visitors than expected came from the British Isles. For most of the respondents (82%), this was their first trip to Iceland, but 18% had visited the country before.

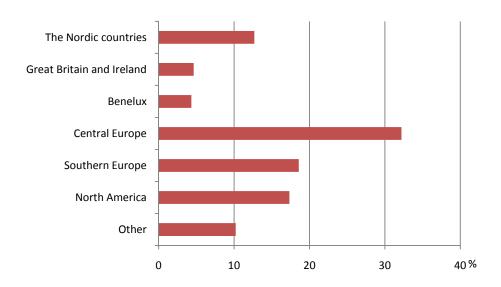


Figure 3: The geographical origin of respondents

The respondents were asked about their incomes, relative to average incomes in their country of origin. Nearly half reported that their incomes were about average, but a third reported incomes a little over the national average in their home country (Figure 4). A listing of occupations revealed that the majority of respondents consisted of white-collar, professional people, with tertiary education. Again, on these counts the sample mirrors rather well the spectrum of international tourists in Iceland during the summer months.

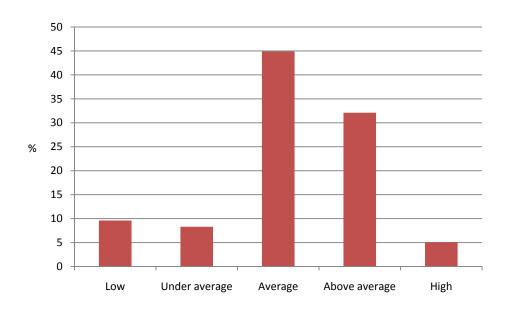


Figure 4: Incomes of respondents, respective to their home countries

One question asked the respondents to describe themselves as travellers. A set of three semantic differential scales with six steps was used for this purpose. First the respondents were asked whether they preferred travelling in natural surroundings or in towns or cities. Next they were asked to indicate whether they were better characterised as organized or spontaneous travellers. The final item posed travelling to popular spots against places seldom visited (Table 1).

Table 1: Self-description of the respondents. Numbers for each of the three items indicate % of those answering

								average
	1	2	3	4	5	6		score
nature	38	30	19	9	3	1	towns/cities	2,1
organised	12	20	25	13	19	11	spontaneous	3,4
popular spots	1	4	15	30	31	18	seldom visited	4,4

Previous research on tourism in Iceland has clearly revealed that the majority of tourists coming to Iceland are 'nature tourists' (Sæþórsdóttir, 2010, p. 29) and this is indeed confirmed by the answers. An overwhelming majority of the respondents said that, as travellers, they prefer nature over towns or cities. A majority also stated that they preferred visiting places that are seldom visited rather than popular places. This indicates that tourists who visit Iceland see themselves as travelling to a place where nature prevails, and which is for many an alternative to what can be described as 'popular' tourist destinations. Whether the latter accurately characterises the most frequented destinations within Iceland is another matter.

Things are a little less clear-cut regarding the self-characterisation of the tourists as organised, spontaneous — or something in between. This item was included as it was thought it could tell something about those who braved the perceived uncertainties of a trip to Iceland in the wake of the eruption. Perhaps only the really organised travellers had gone ahead with their plans? Or, was it only the spontaneous ones who had been tempted by the spectacular events? It turned out that the respondents included people from the whole spectrum in this regard.

To summarise, it can be assumed that the sample provides a good representation of international tourists in Iceland during the summer high season. The respondents are a varied group, but generally well-educated and professional people with rather high disposable incomes. They come to Iceland above all to experience nature.

3 The organisation of travel

It is hardly a surprise that 89% of the respondents had travelled to Iceland by plane, but 11% had arrived by the ferry *Norröna* in Seyðisfjörður. Organised travellers or not, most people had decided about travelling to Iceland well in advance. More than 40% had already made a decision about the trip in 2009 (Figure 5). Another 40% of the respondents said the decision had been made during the period from January to March 2010, or before the Eyjafjallajökull eruption started affecting air travels. When the disruptions started in April, fewer people made the decision to come to Iceland, which is not surprising. In May and June the interest seems to have risen again.

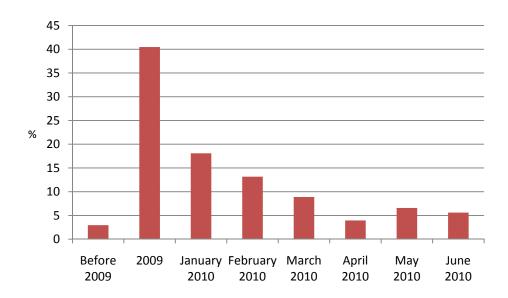


Figure 5: Timing of the decision to travel to Iceland

When asked why people had decided to visit Iceland the answers varied greatly. A great majority, however, mentioned 'beautiful nature' and 'landscape' as an attraction. Quite a few mentioned the economic crises and the state of the currency as a reason, making the trip more affordable.

The trips varied in length, but most respondents had planned to stay (approximately 65%) from one and up to three weeks. The median value was 14 days. This is a little longer than other surveys have found for summer tourists (Iceland Tourist Board, 2010; Guðmundsson, 2010a, 2010b), and could be explained by the fact that a large part of the sample was approached in locations outside of Reykjavík. Those travellers who stay only in Reykjavík and the southwest, tend to stay for shorter periods in Iceland. Some 41% of the respondents stayed in hotels and in 48% in guesthouses (Figure 6). Still, almost 30% said they were staying in a tent or a camping trailer and 13% used farmstead accommodation.

Obviously people use different forms of accommodation during their trip, depending on where in the country they are and what their activities are.

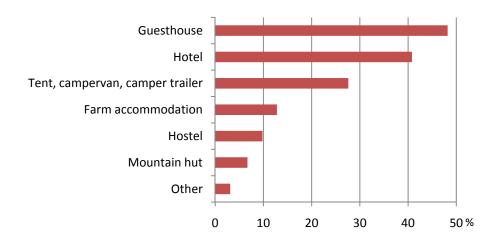


Figure 6: Accommodation used

It is interesting that the most usual travel mode when in the country is by car (Figure 7). Some 54% of the respondents were travelling in rental cars with additional 14% who were travelling using their own vehicles, brought over on the ferry. The growth of car rental services has indeed been considerable during recent years. Some 22% made use of public transport and 19% went on organised bus tours — a lower-than-expected figure (cf. Iceland Tourist Board, 2010). It should be noted that people could report more than one mode of transport. Also it is likely that the collection of questionnaires outside Reykjavík, in some cases in places that are not usually included in organised bus tours for instance or easily reached by public transport, has led to an overrepresentation of those travelling in private vehicles. However, these numbers clearly indicate that the majority of those who travel to Iceland are travelling independently. They are thus relatively free to organise their trips according to their own priorities and perceptions of interesting destinations.

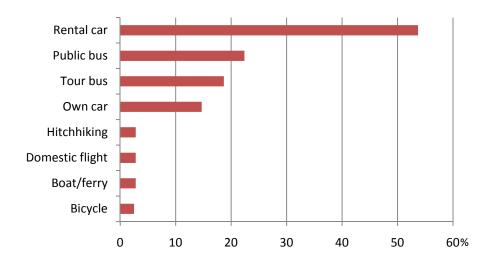


Figure 7: Transportation modes used

The respondents were asked to indicate on a simple map the routes they had travelled or intended to travel during their trip, and to check whether they visited several common tourist destinations in Iceland. Of course the routes chosen were quite varied. Many travellers follow the 'ring-road' around Iceland, whereas others stick to the southwest or concentrate on particular areas elsewhere, such as the Mývatn region and the north.

A list of activities was presented in the questionnaire and the respondents were asked to indicate which of those they had participated in. Some of these categories are very broad (i.e. 'sightseeing') and were reported by the overwhelming majority (Figure 8), whereas others only appeal to small subgroups. Nature-based activities, e.g. hiking or observing birds and whales, are prominent, but many tourists also visited exhibitions and museums or attended cultural events. Almost half of the respondents reported shopping as one of their activities, which could seem surprising as Iceland has not exactly been known as a shopper's paradise, but the low value of the Icelandic króna has undoubtedly played a part here. Last but not least, swimming or bathing is firmly established as part of the Iceland tourist experience. Some other activities were also reported, but only by a few respondents.

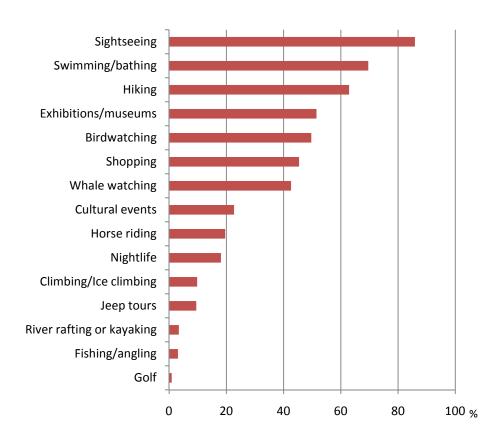


Figure 8: Participation in various activities

Most of the respondents had planned their trip to Iceland long before the eruption started and did not let it stop them from travelling. The fact that the majority of tourists who come to Iceland travel independently, can mean that they are aware that they can organise and reorganise their travels in the country according to circumstances at each time. It is possible that such travellers are not as likely to worry about the consequences of a localised event such as the eruption on their holiday plans as the typical 'package tourists' would be. The actual impact of the eruption will be explored further in the next section.

4 Impact of the eruption on travel interest and experiences

In the questionnaire, one basic question was aimed at finding out whether the eruption in Eyjafjallajökull had at all affected the respondents' interest in coming to Iceland, and if so, in what way. No fewer than 76% of the respondents stated that the eruption had not changed anything regarding their interest in Iceland as a tourist destination (Figure 9). The 24% who said that it had in fact affected their interests stated various reasons for it, but when the comments are analysed it seems that the eruption has had two opposite kinds of impacts. Some 39 respondents, or 12%, had been negatively affected in their thinking, contemplating at some stage whether they should go ahead with the trip, but almost the same number (36) reported that the eruption had increased their interest.

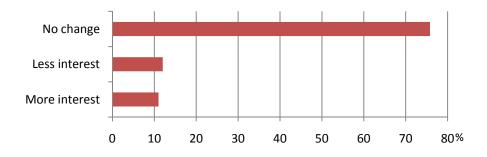


Figure 9: Impact of eruption on the interest in travelling to Iceland

Many of the former were concerned about complications in travel, both internationally and when travelling around Iceland. They were worried about flight delays; that roads might not stay open or even that they would have to cancel their travel altogether. Interestingly however, most of the responses (also comments made by many of those who had been worried before coming) do hint at how the eruption added to the value of the trip, so to speak. Many explicitly said that it had made them more interested in visiting. Below are selected answers from the questionnaire that indicate this:

- Because of the eruption I read more about Iceland and got interested in it.
- It did enhance the anticipation of our trip.
- If something it made the visit more special.
- I planned the trip before the eruption but it got more interesting of course.
- I wanted to see the volcano because it rocks! Ash and everything.
- I was massively excited by it and it made me want to travel to Iceland more.
- Iceland is a country where the energy from the depth of the earth comes to the surface. Eyjafjallajökull is an example: earth is alive.
- It actually made me want to come more as I thought it would be quieter because less people would come.

- My interest grew and I wanted to visit the volcano area.
- Nice to see the eruption but hopefully without being affected.
- Sharpened senses for bizarre landscape and volcanic activity.

More than a fourth of the respondents (27%) reported that the eruption had affected their daily lives before arriving in Iceland. For most it had been a case of travel delays affecting either themselves, members of their family, friends or workmates:

- A guest from Scotland had to stay in our house for another week because of the flight cancellations to Europe.
- I was on my way to Canada for a work trip and got stranded in Amsterdam because of the eruption. It took me a week to get back home.
- It affected my work slightly as I work in international health insurance and we had customers who could not get home and were running out of medication so we had to help them.
- Many people were not able to come to my wedding.

Some answers do also indicate that people were worried that they would have to cancel their trip to Iceland due to the ash cloud. But the flight cancellations had an interesting side-effect reported by one respondent who lives near Frankfurt airport. The respondent commented on the welcome relief from having to endure the noise from the air traffic in the vicinity of this large international hub.

The direct impact of the eruption on the respondents' own travelling plans turned out to have been limited. Only 10% stated that they had seen it necessary to change their plans, whereas nine out of every ten travellers did not have to make any changes (Figure 10). Furthermore, in many cases the changes were not necessarily seen in a negative light. Most commonly, people had made some changes to their itineraries. It turned out that the area in the vicinity of Eyjafjallajökull had not been avoided by these travellers. Indeed, the changes made to the travel itinerary were most often made in order to get closer to the volcano:

- I went to see the volcano first.
- We wanted to go to the routes near the volcano.
- That hike between Eyjafjallajökull and Mýrdalsjökull was not planned before.

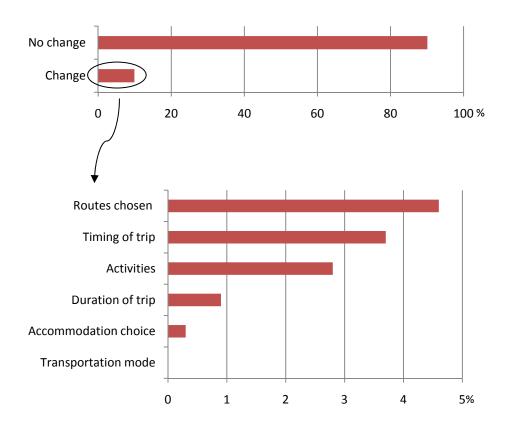


Figure 10: Changes to travelling plans due to the eruption

In a few cases the timing of the trip had been changed, due mostly to delays of flights, but in one instance the respondent stated that he had "wanted to get there as quick as possible". A handful of people had changed their activities, mostly in order to get closer to the action, for instance by attempting to hike the Fimmvörðuháls route, which was gradually opening up as the summer progressed. Finally, only three reported that they had changed the duration of the trip — and two of those said they had stayed longer than they originally envisaged. The impact on the choice of accommodation was practically nil, and interestingly no people reported that they had switched transportation modes because of the eruption. If people had serious worries, they could perhaps have been expected to opt for organised tours with professional guides, instead of self-drive tours.

The eruption does not seem to have deterred many people from travelling along the south coast, with 68% reporting that they had passed through Vík. This is particularly noteworthy because the car rental firms had issued warnings about driving through the ashaffected areas. Those warnings were strongly criticised by tourist operators in the south as being ill-founded, and in any case they were not heeded by many tourists.

Only 19% of the respondents said they had directly experienced some impact of the eruption during their trip (Figure 11). Since the eruption had mostly ceased when the survey was carried out, these experiences were mainly due to windborne ash or the experience of landscapes covered in ash.

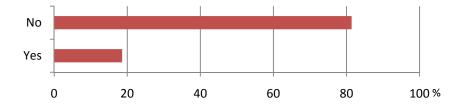


Figure 11: Direct experience of the eruption

Many people provided comments on their experience. For most it had obviously been a novel and poignant reminder of the results of the volcanic event:

- Ash cloud, for a day we could hardly see the sun
- While hiking we had ash under our feet
- I had to tie a bandana around my face once because ash was being blown around
- More than 30 cm of ash above ice and snow as hiking between Skógar and Þórsmörk. Amazing!

There were few who had also been made aware about the impact of the ash through the car rental companies:

- Hertz rental car company did not allow me to drive anywhere near the eruption because they said if would damage the car.
- Increase of insurance of the rental car.

Summing up, it seems that insofar as the eruption in Eyjafjallajökull had any impact on tourists visiting Iceland during the months of June and July 2010, this tended to be rather positive. Those who came had followed the turn of events through the media and in many cases their daily lives had been affected by the eruption prior to embarking on the Iceland trip. Even so, they were undeterred.

5 Information and knowledge of volcanism and volcanic hazards

Not surprisingly, all those who answered the questionnaire were aware of the presence of volcanic risks in Iceland. The respondents were asked to indicate on a map those regions of Iceland where they thought active volcanism was to be found. Scientifically speaking, parts of all regions except the Westfjords, Eastfjords and the central north can be considered as volcanically active, although the most recent eruptions have been confined to a few sites in the south (e.g. Hekla, Surtsey, Heimaey), northeast (Krafla) and the subglacial sites in the Grímsvötn area. This 'true' distribution of recent volcanic activity is reflected in the awareness of tourists (Figure 12). Some 85% correctly identify the south with volcanism. It could be surmised that the remaining 15% simply have a very limited geographical understanding of the country or the location of the Eyjafjallajökull volcano. The central highland area is (correctly) considered volcanic by some 60% and the northeast by 40%. However, only 32% think that the southwest is volcanically active at the present time, even if lavafields and craters are very visible in the landscape of Reykjanes on the way from Keflavík International Airport and the vicinity of Reykjavík. At the other end, the Westfjords are almost universally – and accurately – understood to be free of volcanic activity.

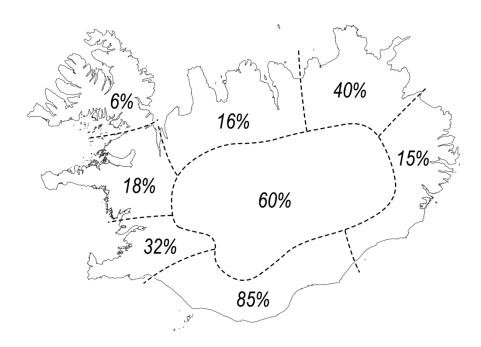


Figure 12: Perception of volcanism in various regions of Iceland. The numbers show the percentage of respondents who thought the region contained active volcanoes.

Considering the magnitude of air traffic disruptions during the Eyjafjallajökull eruption, it is no surprise that 48% of the respondents said they had regularly followed the eruption in

the media while it was still active, and other 48% had done so quite often or occasionally (Figure 13). Given the reasonably high degree of awareness of volcanic risk and knowledge about its geographical distribution, it is perhaps surprising that only 38% of the respondents said they had looked for specific information about volcanoes or volcanic hazards before they arrived. In the light of the publicity the eruption got in foreign media, this is not very high. One could have expected that people were more worried about the possible dangers of coming to Iceland at this time. Those who had made the effort to seek more information had looked for a variety of things: effects on aviation; possible health hazards; and the condition of the roads and hiking paths in the vicinity of the volcano. Such information was obtained mostly from books and the internet.

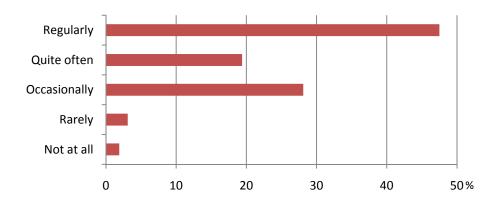


Figure 13: Frequency of seeking information about the eruption in the media

Only 6% of those who answered the questionnaire had sought advice regarding health hazards associated with the eruption. Only 3% had made some practical health precautions. Mostly these measures consisted of taking along some dust masks. A handful of visitors had brought goggles for eye protection and some people suffering from respiratory diseases had made special precautions regarding medicine. But on the whole, the tourists seemed to be rather blasé about health and other possible hazards relating to the eruption.

It can be seen from these data that the visitors were on the whole quite familiar with the presence of volcanism in Iceland and most people had some idea about its geographical pattern. A certain concern with the risks involved in travelling to Iceland under these circumstances was present before the trip, albeit not very widespread. It must be taken into account, however that this survey did of course not include those who had called off their Iceland trip. Presumably this group was much more concerned with the risks, both in terms of potential delays and personal safety.

6 Conclusion

The general conclusion possible to draw from this research is that the eruption in Eyjafjallajökull had a rather limited impact on those tourists who came to Iceland during the months of June and July 2010, compared to what might have been expected. The tourists who took part in this survey exhibited similar characteristics as have been demonstrated in several previous surveys of those visiting Iceland during the summer months (Guðmundsson 2010a, 2010b; Sæþórsdóttir 2009, 2010). They were generally well educated and with incomes about or just above average compared to their home country. They were above all drawn to Iceland due to its nature and landscapes. They travelled relatively independently, making their own decisions about where to go and what to do. They did not avoid the areas affected by the eruption, but on the contrary, showed an interest in knowing more about the volcanic event and its consequences for the surrounding areas.

It was deemed necessary by the tourism authorities to embark on an extensive marketing campaign in order to convey to the international audience that the country was a safe destination in spite of the eruption. The campaign emphasised that the country was perfectly safe and free from complications. But, as we have discussed at some length in other publications (Benediktsson, Lund & Mustonen, 2010; Benediktsson, Lund & Huijbens, 2011; Lund & Benediktsson, 2011), this approach may be limiting. The tourists who come to Iceland are well aware of its active nature and what it can mean for the traveller. Most are prepared to face this nature and, indeed, want to experience its rough edges just as well as the more benign features. The survey points to the importance of understanding the priorities and preoccupations of those visiting Iceland, instead of assuming that hazard events, such as the eruption, have uniformly negative consequences for the tourism sector. In the long run, it is likely that the impact of the eruption on Icelandic tourism will be considered almost wholly positive. It has further strengthened the country's reputation as a place where the full range of natural forces can be experienced.

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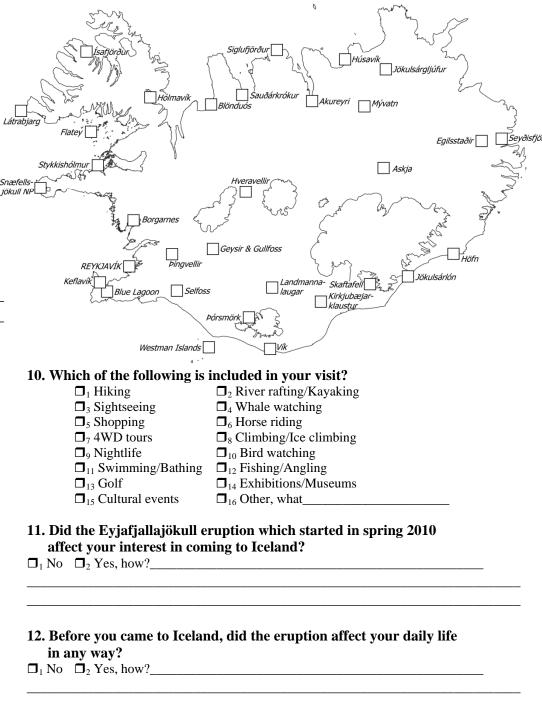
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Appendix: The Questionnaire

QUESTIONNAIRE FOR INTERNATIONAL TOURISTS

This short questionnaire is about the impacts of the 2010 volcanic eruption at Eyjafjallajökull on international tourism in Iceland. It is part of a research project at the University of Iceland. The form should take only few minutes to fill out – your participation is very much appreciated!

1. For how long are you staying in Iceland?days				
2. Is this your first time in Iceland?	\square_1 Yes \square_2 No			
3. When did you decide to go on this trip?4. Why did you decide to go on this trip?				
5. How did you come to Iceland?	\square_1 By plane \square_2 By ferry			
6. With whom are you travelling on	this trip? (mark more than one if appropriate)			
\square_1 By myself	\square_2 Work or club mates			
\square_3 Family members/Spouse				
☐ ₅ Relatives/Friends	□ ₆ Others, whom?			
7. What kind of accommodation are	you using? (mark more than one if appropriate)			
\square_1 Hotel	\square_2 Mountain huts			
	\square_4 In the car			
\square_5 Farm accommodation \square_8 Other, what?	\square_6 Tent/Camping trailer \square_7 With relatives/friends			
8. How are you travelling? (mark mor	e than one if appropriate)			
\square_1 In a private car	\square_2 On horseback			
\square_3 In a rental car \square_4 On	bicycle			
\square_5 On public transportation	□ ₆ On foot			
☐ ₅ On public transportation ☐ ₇ By tour bus	\square_8 Others, how?			
9. On the map, tick the places you ha and draw your main travel route				



13. Did the eruption make you change your travelling plan? □₁ No (Go to question 14) □₂ Yes □a Timing of the trip	20. Do you know where in Iceland volcanic activity
□ _b Duration of the trip	is possible?
$\square_{\rm c}$ Routes travelled	
□ _d Choice of accommodation	
□ _e Choice of activities	
☐ _f Transportation used	
14. Did you follow the eruption in the media? Not at all Occasionally Regularly □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	21. What makes Iceland an interesting travel destination from your point of view 22. Has your image of Iceland changed during your trip? □₁ No □₂ Yes, how?
16. Did you seek health advice because of the eruption before your trip? □₁ No □₂ Yes	23. How would you describe yourself as a traveller? I prefer nature
17. Did you take any special health precautions because of the eruption? □1 No □2 Yes, which	24. What is your income compared to an average income in your home country? Low Average High \square_1 \square_2 \square_3 \square_4 \square_5
18. Have you experienced any impacts of the eruption directly during your trip? □₁ No □₂ Yes, what	25. Gender □ ₁ Male □ ₂ Female 26. Age years
19. Can you name three natural hazards that can occur in Iceland? 1	27. Nationality 28. Occupation



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