Close call: Bad weather drives up phone calls to our nearest and dearest

October 10 2012

Who we call and how long we speak to them changes with the weather, according to new research by experts at Newcastle University.

Analysing the call patterns of 1.3 million mobile phone users, the team found that in 'uncomfortable' weather – such as very hot, humid, wet or cold weather – call length increased but the number of people we made contact with went down.

Apparently "isolating" ourselves during more unpleasant weather, research lead Dr Santi Phithakkitnukoon said the data showed that we were also more likely to contact our close friends and family than our wider network.

Publishing their findings today in the online academic journal PLOS ONE, Dr Phithakkitnukoon said the study offered an insight into how phone use data sets could help us understand human relations and interactions.

"The fact that mobile phones have become an indispensible part of many people's lives means that they provide an opportunity to measure human behaviour and social dynamics, like never before," explains Dr Phithakkitnukoon, an expert in Social Computing at Newcastle University's Culture Lab.

"The weather is well-known to influence human behaviour. Our mood, health and how active are all vary with the weather. Our research

suggests our mobile phone addiction is also susceptible to changes in the weather.

"We found that during uncomfortable weather our "ringing anyone" behaviour declined, talking on the phone for longer to our close friends and family more than our wider network."

The study used anonymised data from over 1.3 million mobile phone users in Portugal. Using call logs and location traces, the team then categorised the calls into two types: strong social ties and weak social ties.

"Strong ties are people who are socially close to us and whose social circles closely overlap with our own," explains Dr Phithakkitnukoon.

"The key to this is not call length but reciprocal calls - that is how often we call them and, crucially, how often they call us back. By factoring in the two-way 'chatter', we could determine not only strong and weak ties but also eliminate the random 'noise' such as business calls which are often long but are generally not returned."

Using the same data set, the team have also suggested that mobile phones could play a vital role in helping planners to develop smarter cities that closer reflect the way we live, work and play in the 21st century.

Analysing how our social ties influence the way we travel a second paper also published in *PLOS ONE*, revealed that people tended to travel within just 20km of their nearest social ties – dubbed their 'geo-social' radius.

Dr Phithakkitnukoon said the study shed new light on the interplay between people's mobility and their social networks.

"Unlike a fixed phone which is shared, a mobile phone is a personal

device associated with an individual so it gives us a much more accurate picture of people's social networks. But more importantly, mobiles are geo-located by the serving antennas and this allows us to build up a picture of where we live and travel in relation to our friends and family.

"We found that 80% of places visited were within an individual's geo-social radius of just 20km. In densely populated areas such as Lisbon and Porto, this distance fell to just 7km.

"If we can use this information to build up a picture of people's movements – the places they visit their daily travel patterns – then we can use this information to help shape our cities and transport systems of the future."

More information: "Weather effects on mobile social interaction: A case study of mobile phone users in Lisbon, Portugal." S Phithakkitnukoon, TW Leong, Z Smoreda, P Olivier. *PLOS ONE*: dx.plos.org/10.1371/journal.pone.0045745

"Socio-geography of human mobility: A study using longitudinal mobile phone data." S Phithakkitnukoon, Z Smoreda, P Olivier, *PLOS ONE*: www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0039253

Provided by Newcastle University