

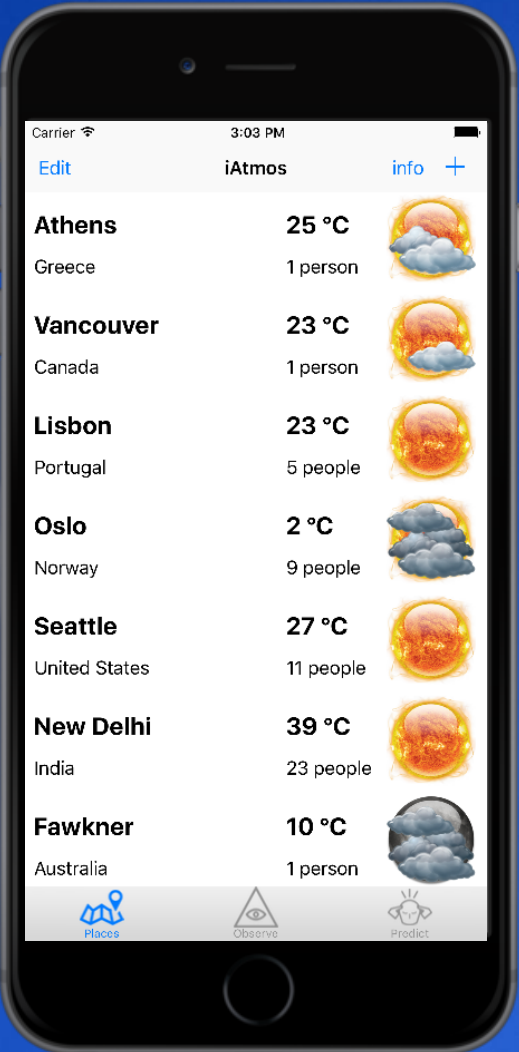
iAtmos

Mobile Weather Data Crowdsourcing

Evangelos Niforatos
PhD Student
Faculty of Informatics
University of Lugano (USI)
Switzerland

<http://myweather.mobi>

iAtmos (iOS) App



Pushing the Boundaries of Weather Forecasting

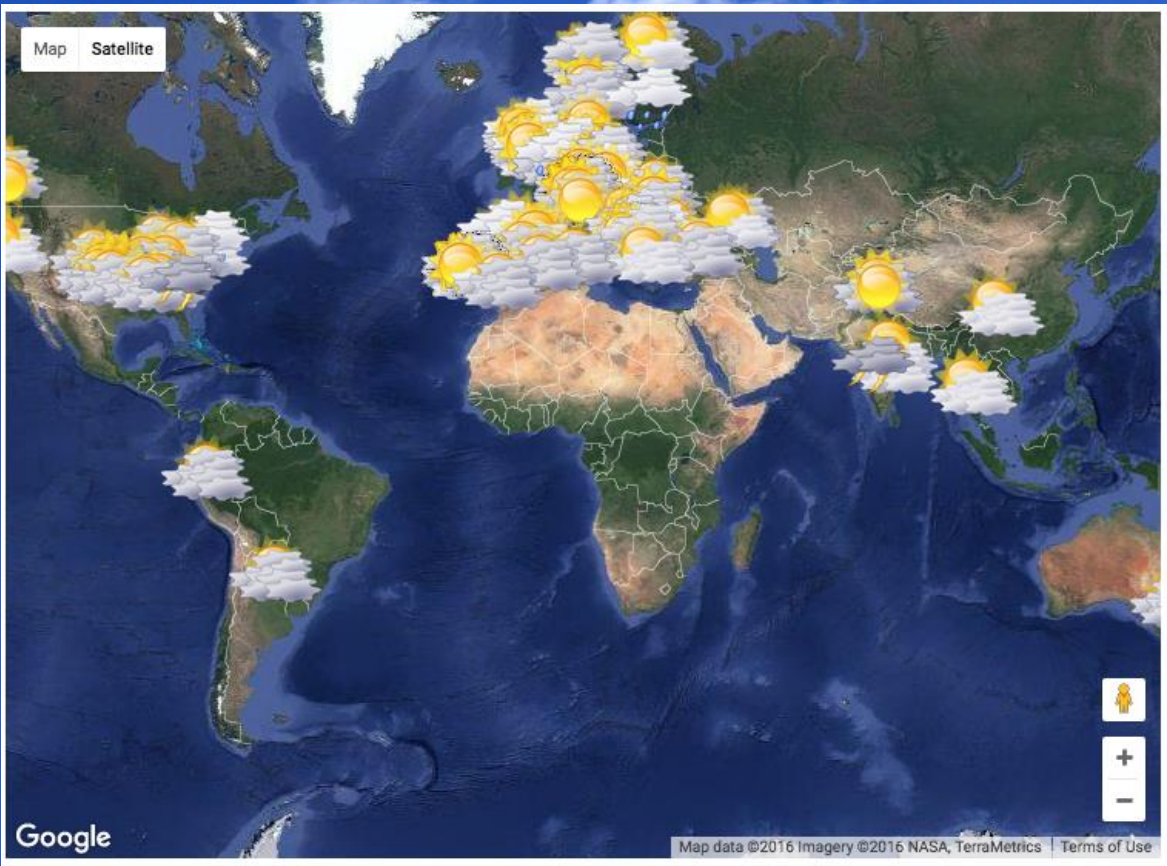
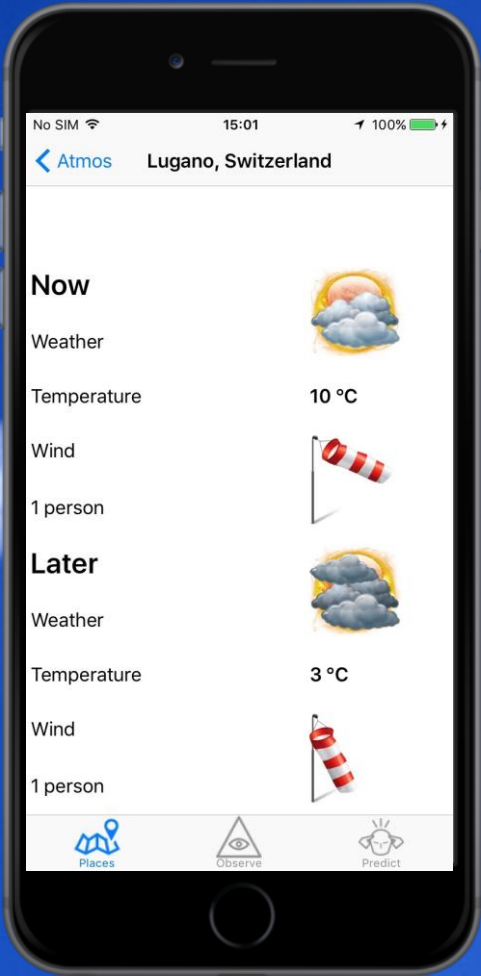
Weather forecasting nowadays is more accurate than ever, but...

- Still coarse
 - Higher resolution is often required (e.g. precision agriculture)
- Still insufficient for areas with microclimates
 - Weather changes suddenly and fast
 - Mountain valleys, islands etc.
- Leveraging on people's knowledge still low
 - Users: How reliable are they?
 - User predictions not supported by other apps
 - **Ultimately combining human input with sensor input**

iAtmos Data Sources

- Users (Voluntary Contribution)
 - Current/Future Temperature (-20 °C to +40 °C)
 - Current/Future Weather phenomena (Stormy - Clear)
 - Current/Future Wind intensity (Calm - Windy)
 - Voluntarily contribution
- Sensors (Automatic Input)
 - GPS Location and Time
 - Pressure (mbar/hPa)
 - Magnetometers (μT)
 - Accelerometers (m/sec^2)
 - Potentially: Ambient/Battery Temperature, Relative Humidity, Luminosity etc.

Data Visualization and public API



Research Output

1. **Niforatos, E.**, Vourvopoulos, A., Langheinrich. *Understanding the Potential of Human-Machine Crowdsourcing for Weather Data*. Journal of Human Computer Studies (IJHS). Elsevier (October 2016).
2. **Niforatos, E.**, Elhart, I., & Langheinrich, M. *WeatherUSI: User-Based Weather Crowdsourcing on Public Displays*. In International Conference on Web Engineering (pp. 567-570). Springer International Publishing (June 2016).
3. **Niforatos, E.**, Vourvopoulos, A., Langheinrich. “Weather With You”: *Evaluating Report Reliability in Weather Crowdsourcing*. 14th International Conference on Mobile and Ubiquitous Multimedia, ACM (2015).
4. **Niforatos E**, Fouad A, Elhart I, Langheinrich M. *WeatherUSI: Crowdsourcing Weather Experience on Public Displays*. In Proceedings of the 4th International Symposium on Pervasive Displays, (pp. 241-242). ACM (2015).
5. **Niforatos, E.**, Vourvopoulos, A., Langheinrich, M., Campos, P., and Doria, A. *Atmos: A Hybrid Crowdsourcing Approach to Weather Estimation*. UbiComp’14 Adjunct, ACM (2014). DOI:10.1145/2638728.2638780

Thank you!

Questions? E-mail me!
evangelos.niforatos@usi.ch

For more info visit: **<http://myweather.mobi>**