The Event

- 8.2 magnitude earthquake located 98 km NW of Iquique, Chile resulted in 2 meter waves.
- Media reported power and phone outages along coastal areas.
- The cities of Arica and Iquique reported widespread outages of electricity and phone service.
- Nearly one million residents evacuated near the coast.
- Estimated $100 million USD in damages.
- At least 7 confirmed direct/indirect fatalities.

Following Disaster Events:
The Chilean Earthquake of 1 April 2014

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9.6 magnitude earthquake hit Iquique, Chile on April 1, 2014.

Each city appeared to achieve near full recovery one week following the event.

Post event emissions are.

Estimates of affected inhabitants can be achieved via global population data sets.

Spectral resolution: 0.5

Media reported power and

2012 Global Population Data Set

Spatial resolution: 750 m

Color reported widespread

Nearly one million residents

Example DNB image, light emissions from cities

Visible/Reflective band

Oak Ridge National Laboratory produces a 30 arc

Can detect light emitted from surface

Arica appeared to recover much quicker than Iquique; future work will strive to identify

0.9 µm

At least 7 confirmed

Can also detect reflected moonlight from

SPoRT

100%

The cities of Arica, Chile and

Iquique reached

0.9 µm

Disasters Team has developed a technique to use the VIIRS DNB for

Detection of Power Outages and Recovery

Conclusions/Future Work

- The NASA SPoRT Disasters Team has developed a technique to use the VIIRS DNB for identifying disaster impacts on human settlements.
- A quantitative differencing product provides a regional view of light emission changes.
- Subsequent additional satellite passes can monitor the rate of recovery as light emissions return to normal.
- Estimates of affected inhabitants can be achieved via global population data sets.
- Each city appeared to achieve near full recovery one week following the event.
- Arica appeared to recover much quicker than Iquique; future work will strive to identify factors that influence rates of recovery.
- Future work will also examine statistics of cloud-free DNB imagery to understand variability in emissions, useful in improving outage detection.

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