Sookyung Kim
Supported Projects: ESGF, CASC postdoc

Quarterly Report for April 1, 2017 – Jun 30, 2017

Quarter Accomplishments:
- **Machine Learning**
  - Install GPU enabled Tensorflow 1.20 in aims-gpu
  - Developed labeled dataset of hurricane from create-ip-database in ESGF framework
  - Design and Develop Convolutional Neural Network frameworks to detect and localize hurricane
  - Applied pixel recursive CNN to reconstruct high resolution hurricane data from low resolution hurricane data
  - Parallelize Pixel CNN code with 8 threads of Tesla GPU (aims-gpu cluster), and training is 8 times faster now
  - Participating deep learning reading group lead by Barry Chen
- **ESGF proposal**
  - Present topic on ESGF Proposal meeting in Washington DC
- **Conference Presentations**
  - <u>**Sookyung Kim**</u>, Jun 8 - 9, 2017: Machine Learning Application for ESGF

Next Quarter's Roadmap
- Reconstruct high resolution CFSR reanalysis data from low resolution JMA reanalysis data, and compare localization accuracy between them
- Performance analysis for GPU parallelized pixel CNN
- Meeting with LBNL Machine Learning Scientists on **July 14**
- Present recent progress on extreme climate event detection in deep learning reading group on **July 18**
- Workshop paper submission (Climate Informatics: **July 22**, CEFRL: Compact and Efficient Feature Representation and Learning in Computer Vision : **July 24**, Machine Learning on HPC platform: **Aug 17**)
- Conference paper submission (WSDM – Web Search and Data Mining: **Aug 4**)

Resources Required to Achieve Goals
- Bandwidth of GPU implemented LC (Aaron may help us for using his own GPU)