V. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

1. The average values of EVI is relatively constant between 0.4 – 0.6. The pattern of EVI fluctuation started increase in April and decreased in November. However, the effects of ENSO to the temporal changes of EVI are small.

2. Estimation of NPP using NASA CASA model has shown that high value of Net primary productivity (NPP) has occurred in April and low NPP has occurred during September to October. Furthermore, NPP over Sumatera Island ranges from 0 to 1600 g C m\(^{-2}\) yr\(^{-1}\).

3. NPP flux within the forest region is ranging from 150 to 400 g C m\(^{2}\) month\(^{-1}\) and monthly average of NPP flux is 50 to 180 g C m\(^{2}\) month\(^{-1}\).

4. Effect of inter-annual variation of El Nino is not clearly seen. However NPP has decreased 106 g C m\(^{2}\) yr\(^{-1}\) during El Nino event. On the contrary, The NPP is increasing of 283 g C m\(^{2}\) yr\(^{-1}\) during La Nina event.

5. Variations in NPP across years are tightly to variations in climate, particularly precipitation. NPP is highly correlated with the Indian Ocean Dipole (IOD). The NPP is the highest in April during the monsoonal transitional period, and decreases to the lowest in September to October during the peak of Australian Monsoon.

6. Net Ecosystem Production (NEP) has shown complex patterns carbon flux. Positive and negative values as indication of carbon sink and carbon source have occurred in the same areas during normal or abnormal climate condition.

7. Effect of climate variability is not clearly seen for carbon sink although there is increased NPP during La Nina event.

8. Locations with large positive annual NEP are often those receive a high amount of precipitation. In contrast, locations with negative NEP are often those that receive little precipitation.
5.2 Recommendation

1. Although the results in this study represent our current understanding of how climate change affects terrestrial NPP, they do not consider the redistribution of vegetation that may result from climate change. It is recommended to evaluate the sensitivity of NPP to vegetation redistribution in addition to changes in climate.

2. To improve the prediction of net primary production, it is recommended to apply more parameter data such as land cover data from high resolution satellite data.

3. It is important to conduct field experiments and observations for advancing our understanding of the interactions between the carbon and nitrogen cycles in the tropics.