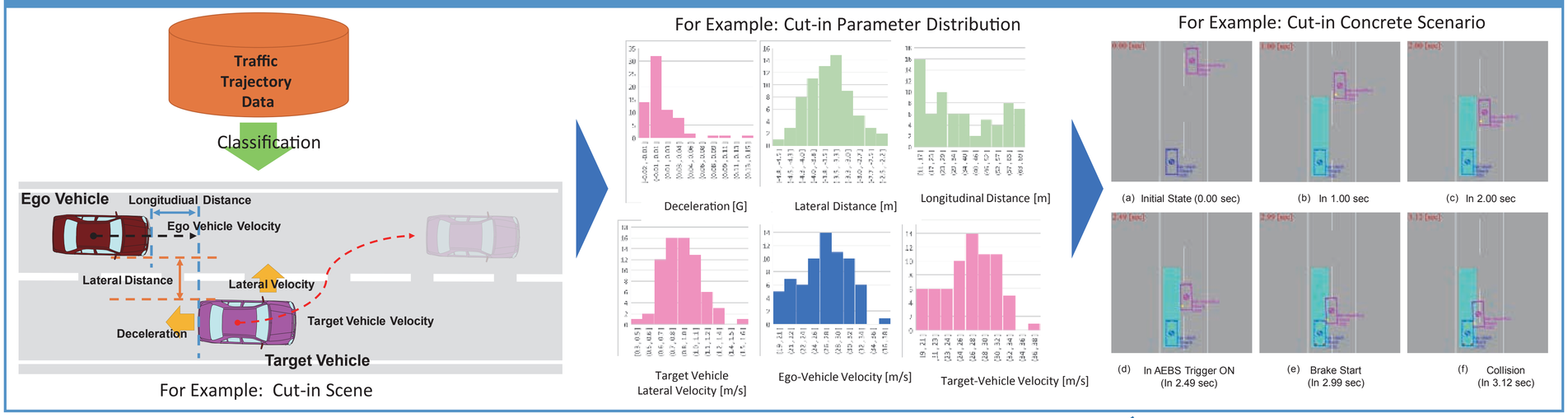
SIP-adus Workshop 2019

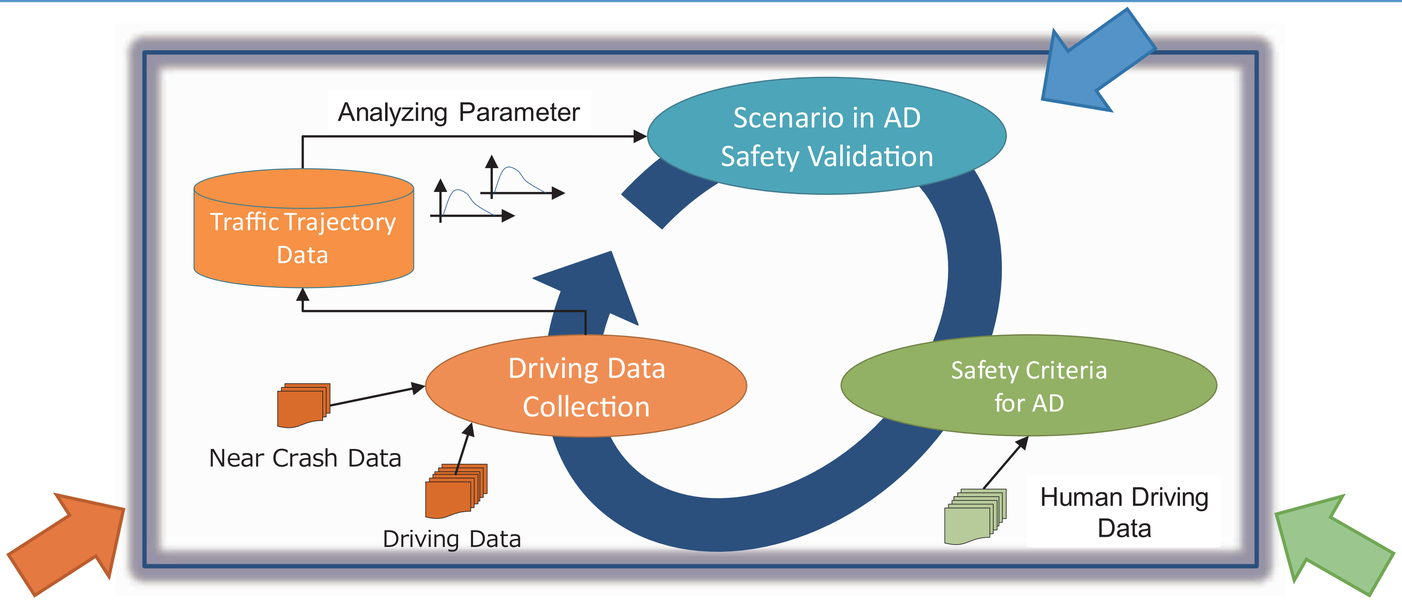
# Safety Assurance Kudos for Reliable Autonomous vehicles: SAKURA Project

## Summary


- Socially acceptable and technically sound safety assurance methodologies are needed to safely introduce Automated Driving systems into the market.
- The SAKURA project is a large scale coordinated initiative funded by the Japanese Ministry of Economy, Trade and Industry (METI) that aims at harmonizing data collection, developing research methodologies and coordinating standardization activities through joint efforts by vehicle manufacturers and traffic safety research institutions.
- Within this project, a comprehensive safety assurance process has been developed and a number of activities are being deployed including real-traffic monitoring data collection, development of traffic scenarios for safety evaluation and definition of safety criteria.
- The safety assurance process will be applied to guide the development of the systems towards a safer Automated Driving society.


## Scenario in AD Safety Validation

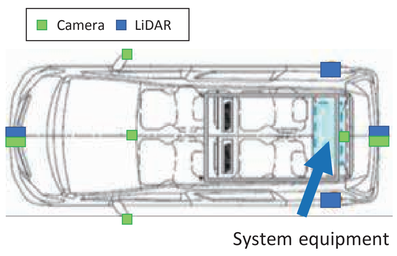



## Driving Data Collection

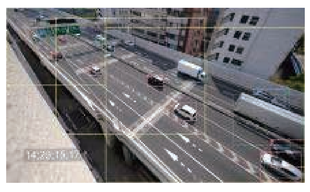
**Data Collecting Vehicle**

- Collect driving data of 360 degrees around ego-vehicle

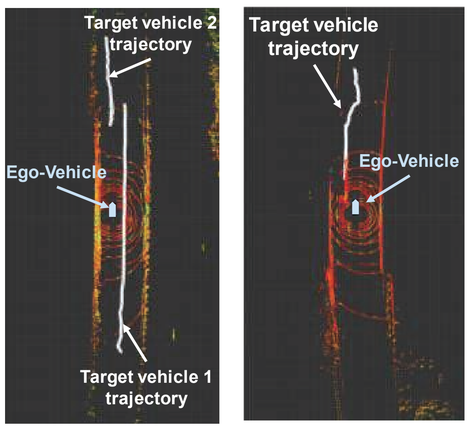


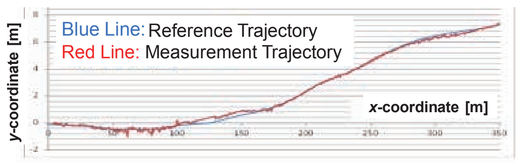

**Fixed Location Camera**

- Road users are detected
- Trajectory extraction of vehicles

- Trajectory extraction of surrounding vehicles

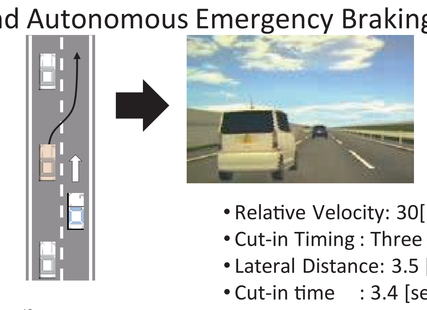



## Safety Criteria for AD

**Comparison with human driver capabitilty**

- Evaluation of human driver capability of cut-in scenario by Driving Simulator
- Comparison of safety between human driver and Autonomous Emergency Braking System



- Relative Velocity: 30[km/h]
- Cut-in Timing : Three Conditions
- Lateral Distance: 3.5 [m]
- Cut-in time : 3.4 [sec]