1. How do you assess the miss distance impacted by the ECM technique employed? Because like the example showed 100m could not be enough for the platform safety..!

Ans1: The main scope of our HWIL simulation is to verify (in this case) if the ECM under test is able to deceive the threat and create a miss distance, and to estimate how much is the miss distance. This simulation helps to optimize the ECM to maximize the miss distance. Once the miss distance that can be obtained is known, to assess the amount of damages caused by the missile explosion, (for that miss distance) requires an additional SW simulation that has to take into account other data, like the war-head type of the missile and the physical characteristics of the ship.

2. How do you create/make a simulation while the result of the simulation depends on the performance of the enemy missile that you do not know

Ans2: In order to di this simulation the USER needs to create a model to emulate the behaviour of the enemy missile. So the end-user needs to know enough info about the threat, this is work for the intelligence.! The industry can provide "templates for the models", the END_USER have to "refine" them putting inside the models the exact parameters (usually they are classified, i.e. frequencies, pulse widths, agility, freq. hopping, ECCM, etc.). But even with partial data it is possible create models with enough accuracy. For instance if the waveforms are known, this is usually the case, it is possible to figure out the characteristics of the signal processing...etc. Even to create the ECM techniques it is required to know about the threat!

3. ASM are flying very close to the water. How representative is the flight profile of a pod under an aircraft that flies higher and that has lower agility?

Ans3: ASM do not manoeuvres much, so an aircraft should be enough represenative, regarding the minimum flight altitude, you are correct the aircraft is probably not able to fly at such low altitude so it means that a radar on the ship would detect it at a higher distance, but this would happen anyway as the aircraft has much higher RCS than the threat alone. But the exercise is good enough to check all the terminal phase from when the missile turns on its seeker and the on-board ESM detect it to when it would home on target. During this fly the "search-acquisition" and "lock-on" on one side, and the ECM on the other, is very realistic, the J/S for instance, changes like in the real case and any chaff or decoy can be evaluated. The reaction time of the ship can also be tested as well, taking into account the possible speed difference of the aircraft