*Attachment 3*

**Research Guidebook of AP-TCRC**

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| **Directions** | **Contents** |
| International Observational Big Science Programme for New Technologies | 1. Novel typhoon observation and data quality control analysis techniques based on photoelectric and microwave technologies 2. Typhoon intensity structure change and precipitation mechanism 3. Cloud microphysics, boundary layer and air-sea interaction processes 4. Physical and chemical processes under typhoon-ocean conditions 5. Typhoon data technical standards and compilation technology 6. Multi-source typhoon monitoring and analysis techniques based on artificial intelligence |
| Typhoon AI Simulator Research | 1. Development of typhoon numerical simulation techniques 2. Development of typhoon-ocean coupled simulation systems 3. Parameterization schemes for key physical and chemical processes in typhoon models 4. Multi-source typhoon data assimilation techniques 5. Typhoon forecast verification and evaluation methodologies and international standard research 6. Artificial intelligence-based typhoon forecast model |
| Multidisciplinary Research Programme on Typhoon Early Warning Technologies | 1. Multi-scale/seamless climate prediction techniques for typhoons 2. Typhoon climate prediction techniques 3. Research on the characteristics and response strategies of typhoon disaster risks under different climate change scenarios 4. Research on multi-scenario, multi-temporal, and spatial typhoon disaster models and response strategies for different vulnerable groups 5. Typhoon disaster risk and vulnerability assessment techniques 6. Typhoon catastrophe risk assessment techniques 7. Global typhoon big data center and interdisciplinary application international research and development platform 8. Application of digital technologies such as virtual reality, augmented reality, and the Internet of Things in typhoon monitoring and forecasting |
| AI Urban Typhoon Meteorological Services | 1. Effective application of AI technologies in city-scale sub-scenarios (energy, transport, flood control, urban agriculture, etc.), refined and interactive meteorological services 2. Deep application of AI technology in typhoon and its financial impacts 3. Deep application of AI technology in strong convective weather 4. In-depth application of AI technology in meteorological services, meteorological popularisation, etc. in terms of intelligent writing, digital people, intelligent databanks, etc. |