Attachment 3

Research Guidebook of the AP-TCRC

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| **Directions** | **Content** |
| Typhoon Science Experiment and Observation Data Research | (1) New typhoon observation and data quality control analysis technology  (2) changes in typhoon intensity and structure 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 technology based on artificial intelligence |
| Typhoon Simulator Research | (1) Development of typhoon numerical simulation technology  (2) Development of typhoon-ocean coupled simulation systems  (3) Parameterization schemes for key physical and chemical processes in typhoon models  (4) Typhoon multi-source data assimilation technology  (5) Typhoon forecast verification and evaluation technology and international standard research  (6) Artificial intelligence-based typhoon forecast model |
| Interdisciplinary Application Research in Typhoon Studies | (1) Multi-scale/seamless climate prediction technology for typhoons  (2) Typhoon climate prediction technology  (3) Research on the characteristics and response strategies of typhoon disaster risks under different climate change backgrounds  (4) Research on multi-scenario, multi-temporal, and spatial typhoon disaster models and response strategies for different disaster-bearing bodies  (5) Typhoon disaster risk and vulnerability assessment technology  (6) Typhoon catastrophe risk assessment technology  (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 |
| Application of AI Technology in Typhoon and Urban Meteorological Services | (1) Effective application of AI technology in the field of meteorological services for urban scale scenarios (energy, transportation, flood control, urban agriculture, etc.) under the impact of typhoons, with refinement and interactivity  (2) In-depth application of artificial intelligence technology in the intersection of meteorology and finance  (3) In-depth application of artificial intelligence technology in intelligent writing, digital humans, intelligent Q&A databases, and other aspects of meteorological services and meteorological science popularization |