

Preface for book “Explosive Cyclone”

Extratropical cyclones are most important “actors” in the theater of daily weather. In autumn and winter seasons, rapidly intensifying extratropical cyclones frequently emerge over the mid- and high-latitude oceans, termed as “meteorological bombs” or “explosive cyclones”. These storms is the subject of this book. Their destructions are comparable to those of tropical cyclones. These explosive storms seriously threaten the safety of maritime shipping due to their associated strong winds and huge waves. Since a long time, the international meteorological community has fully recognized the importance of investigating this kind of dangerous weather systems, and has made good use of various possible means to deepen the understanding of explosive cyclone.



From right to left, on the roof terrace of the Seewetteramt of the German weather Service in Hamburg – Gudrun Rosenhagen, head of the Seewetteramt, Prof. Hans von Storch and Prof. Fu Gang.

During my decades-long Sino-German cooperation in marine science, I met Professor Dr. Gang FU early on. Previously he worked as an executive vice dean of graduate school in Ocean University of China, and he had often visited universities and institutes in Germany. I also worked as guest Professor of Ocean University of China and had the privilege to supervise Chinese graduate students

who came with scholarships of the Chinese Scholarship Council to Germany.

In the early 2000s, I had some funds which allowed me to have digitized the original meteorological data, which were archived during the colonial time of Qingdao. Later, on 8 April 2014, upon the request of Professor FU, the original papers with the meteorological observational data of Qingdao and other valuable historical files from the “German time” in Qingdao from 1898 to 1909 were officially returned from the German Weather Service to the government of Qingdao, China. This remarkable and joyous event, which was also due to the joint efforts between Professor Gang FU and me, was widely reported by the Chinese and Germany media. We also formed a deep friendship and solid brotherhood.

Professor Gang FU told me that he was writing a new book “Explosive Cyclone”. I am very happy to learn that this book has now been finished. Professor Gang FU had worked in the field of “explosive cyclone” for more than one decade. He has a deep understanding to this kind of violent storms. He has guided 4 Ph.D students and 8 master students. He also published more than 20 papers with his colleagues and students both in international journals such as *Journal of Atmospheric Sciences*, *Journal of Applied Meteorology and Climatology*, *Advances in Atmospheric Sciences*, and in Chinese journals. This book relies on these scholarly articles as well as on the Ph.D. theses and master theses under his guidance.

It is convinced that Professor FU’s book will be most valuable for readers interested in explosive cyclones, as well as a useful reference for teachers, students and researchers. This book fills a gap in the field of marine meteorology.

Retired Director of the Institute of Coastal Research, HZG

Professor Dr. Hans von Storch

(Hand-written signature)

A handwritten signature in black ink, consisting of two stylized, overlapping letters, possibly 'B' and 'A', on a light blue background.

Hamburg, Germany

08 March 2021

《爆发性气旋》序言

温带气旋是日常天气的舞台上最重要的“演员”。秋冬季节，迅速增强的温带气旋频繁出现在中高纬度海洋上，被称为“气象炸弹”或“爆炸性气旋”。这些风暴是本书的主题，它们的破坏效果堪比热带气旋。与这些爆发性风暴相伴随的强风和巨浪会严重威胁海上航运的安全。长期以来，国际气象界已充分认识到研究这种危险性天气系统的重要性，并充分利用各种可能的手段来加深对爆发性气旋的认识。

在长达几十年的中德海洋科学合作过程中，我很早就认识了傅刚教授。他曾担任中国海洋大学研究生院常务副院长，并经常访问德国的大学和研究所以。我还担任了中国海洋大学的客座教授，并有幸指导了获得中国留学基金委员会奖学金来德国学习的中国研究生。

21世纪初,我利用一些研究基金把青岛殖民时期的原始气象数据进行了数字化处理。2014年04月08日,应傅刚教授的请求,德国气象局把包含1898至1909年“德国时代”的青岛气象观测数据的原始资料和其他珍贵历史文献正式归还给青岛市政府。这是中德两国媒体广泛报道的一件大事,它在很大程度上要归结于我和傅刚教授的共同努力。因此我们也结下了深厚的友谊和坚实的兄弟情谊。

我和傅刚教授两人对风暴、特别是海洋风暴有共同的兴趣。我们于2018年04月5-6日在德国西部城市特里尔(Trier)举办的第14届国际“极地低压”学术会议上会面,是加深这一议题交流的一次重要机会。很显然,海洋风暴不仅是一个具有科学挑战性的课题,而且具有重要的实践价值,特别是对中国青岛和德国汉堡这样的海港城市而言。

傅刚教授告诉我他正在写一本名为《爆发性气旋》的新书,现在我很高兴地得知这本书已经完成。傅刚教授已经在“爆发性气旋”领域工作了十多

年,他对这种猛烈的风暴有深刻的认识, 他已经指导毕业了 4 名博士研究生和 8 名硕士研究生。他还在美国气象学会的机关杂志 *Journal of Atmospheric Sciences*, *Journal of Applied Meteorology and Climatology*, *Advances in Atmospheric Sciences* 等国际期刊和中文期刊上发表了 20 多篇论文。这本书主要依靠这些学术文章以及他所指导的博士研究生和硕士研究生的学位论文。

可以相信傅刚教授的这本书对那些对“爆发性气旋”感兴趣的读者而言是非常有价值的, 对教师、研究生和研究人员来说也是一本很有用的参考书。这本书填补了海洋气象学领域的空白。

德国海岸带研究所前所长

Hans von Storch 鹤汉子 (手写签名)

德国汉堡

2021 年 03 月 08 日