



中国科学院大气物理研究所
中层大气和全球环境探测重点实验室



中层大气和全球环境探测论坛

Colloquiums of Middle Atmospheric and Global Environment Observation

(12)

Atmospheric Research from past to future- Personal Perspective

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报告时间: 2019年11月19日(星期三) 10:00

报告地点: 大气所3号楼第二会议室



Abstract: His research focuses on atmospheric dynamics, climate, numerical methods, limited area modeling, aerosol dynamics and climate change.

Prof. Alpert established and heads the Israel Space Agency Middle East Interactive Data Archive (ISA-MEIDA). Prof. Alpert served as co-director of the GLOWA-Jordan River BMBF/MOS project to study the water vulnerability in the E. Mediterranean.

A novel method for monitoring rainfall employing the cellular network data was proposed by Alpert and colleagues in Science, 2006, and a new approach for advanced flood warning based on it won the "Popular Science 2009 Best of What's New" award for the security category as well as the WIPO award for 2010. He is the 2018 recipient of the EGU Bjercknes medal.

Pinhas Alpert教授指导了近60位研究生, 在包括Nature, Science等国际知名期刊上发表了超过250篇文章, 参与撰写了超过70部书籍, 在2018年欧洲地球科学年会上被授予威廉·皮耶克尼斯奖(EGU Vilhelm Bjercknes Medal)。

个人主页: <http://www.tau.ac.il/~pinhas/>



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Abstract:

I will describe two of our inventions that had global spread and then discuss some major questions related to Mediterranean climate.

Since our pioneering suggestion of the Factor Separation (FS) Methodology in the atmosphere (Stein and Alpert, 1993), many different FS applications were performed, as summarized by Alpert and Sholokhman (2011). Several climate and weather FS applications with focus on the central role of synergies or interactions among different factors as first revealed by this methodology are pointed out. Evidence for the role of climate synergies from the leaf cell up to global scale will be shown (Alpert et al., 2006). Lessons from recent 20 years FS studies in weather & climate will be highlighted.

Another global problem to be discussed is the global dimming and our suggestion that the increased urbanization particularly over world megacities had the major contribution to the solar dimming.

The importance of novel monitoring systems in solving some of the current and future major atmospheric challenges will be highlighted. For instance, the Commercial Microwave Links (CML) to monitor near-surface moisture in its different phases including rainfall, fog and air-moisture (Alpert et al., 2016) that we have suggested (Messer et al., 2006) is an example that spread just in one decade to many groups worldwide.

Another new monitoring approach for aerosols, i.e. the ceilometer data, will be shown as useful to study the recent dust storm from Syria and whether there is a potential new aerosol source in the E. Mediterranean from Syria-Iraq (Uzan et al., 2017).

A central issue in global warming is the recognized Mediterranean "hot spot" with its predicted drying and warming. How will this endanger the poor population of the E. Mediterranean and the Mid-East and cause of potential spread of unrest to other regions of the world?