

Reference

- [1] Alexander, C. R. and Wurman, J. M., “Updated mobile radar climatology of supercell tornado structures and dynamics”, In: 24th conference on Severe Local Storms (Savannah, GA), 2008.
- [2] Andersen, A., Bohr, T., Stenum, B., Juul, R. J., and Lautrup, B., “The bathtub vortex in a rotating container”, *J. Fluid Mech.*, **556** (2006), 121-146.
- [3] Arsen'yev, S. A., “Mathematical modeling of tornadoes and squall storms”, *Geosciences Frontiers*, **2** (2011), 215-221.
- [4] Baker, C. J., and Sterling, M., “Modelling wind fields and debris flight in tornadoes”, *J. Wind. Eng. Ind. Aerodyn.*, **168** (2017), 312-321.
- [5] Baker, G. L., *Boundary Layers in Laminar Vortex Flows*, 1981.
- [6] Balme, M., and Greeley, R., “Dust Devils on Earth and Mars”, *Reviews of Geophysics*, **44** (2006), RG 3003, 1-22.
- [7] Barcion, A., “A Theoretical and Experimental Models for a Dust Devil”, *J. Atmos. Sci.*, **24** (1967), 453-466.
- [8] Batchelor, G. K., “Axial flow in trailing line vortices”, *J. Fluid Mech.*, **20** (1964) 4, 645-653.
- [9] Battan, L. J., “Energy of a Dust Devil”, *J. Meteorol.*, **15** (1958), 235-237.
- [10] Bell, F., Dust devils and aviation, report, Meteorol Note 27, *Aust. Bur of Meteorol.*, Melbourne, Victoria, 1967.
- [11] Bellany-Knights, P.G., “An unsteady two cell solutions of the Navier-Stokes equations”, *J. Fluid Mech.*, **41** (1970), 673-687.
- [12] Ben-Amots, N., “Dynamics and thermodynamics of a tornadoes: Rotation effects”, *Atmos. Res.*, **178** (2016), 320-328.
- [13] Bister, M., and Emanuel, K.A., “Dissipative heating and hurricane intensity”, *Meteor. Atm. Phys.*, **52** (1998), 233-240.

-
- [14] Bister, M., and Emanuel, K.A., “The genesis of Hurricane Guillermo: TEXMEX analyses and a modeling study”, *Mon. Wea. Rev.*, **125** (1997), 2662-2682.
- [15] Bistray, G. P., and Lykov, I. A., “Self-organization in the tornado: A new approach in the tornado description”, arxiv. (2012) 1204, 6158v1.
- [16] Bistray, G. P., Lykov, I. A., and Okhotnikov, S. A., “Thermodynamics of nonequilibrium processes in a tornado”, Synergistic approach. arxiv. (2011) 1109, 5019.
- [17] Bloor, M. I. G., and Ingham, D. B., “The flow in industrial cyclones”, *J. Fluid Mech.*, **178** (1987), 507-519.
- [18] Bluestein, H. B., “A review of ground-based, mobile, W-band Doppler-radar observations of tornadoes and dust devils”, *Dynam. Atmos. Ocean*, **40** (2005), 163-188.
- [19] Bluestein, H. B., Ladue, J. G., Stein, H., and Speheger, D., “Doppler radar Wind Spectra of Supercell Tornadoes”, *Mon. Wea. Rev.*, **121** (1993), 2200-2221.
- [20] Bluestein, H. B., Lee, W. C., Bell, M., and Pazmany, A. L., “Mobile Doppler Radar Observations of a Tornado in a Supercell near Bassett, Nebraska, on 5 June 1999. Part II: Tornado-Vortex Structure”, *Mon. Wea. Rev.*, **131** (2003), 2968-2984.
- [21] Bluestein, H. B., Weiss, C. C., and Pazmany, A. L., “Doppler radar observations of dust devils in Texas”, *Monthly Weather Review*, **132** (2004) 1, 209-224.
- [22] Bluestein, H. B., *Severe Convective Storms and Tornadoes Observations and Dynamics*, Springer, Berlin, 2013.
- [23] Bretherton, F. P., and Turner, J. S., “On the mixing of angular momentum in a stirred rotating fluid”, *J. Fluid Mech.*, **32** (1968) 3, 449-464.
- [24] Brooks, H. B., “Rotation of dust devils”, *J. Meteorol*, **17** (1960), 84-86.
- [25] Burgers, J. M., “A mathematical model illustrating the theory of turbulence”, *Adv. Appl. Mech.*, **1** (1948), 171-199.
- [26] Burgers, J. M., “Application of a model system to illustrate some points of the statistical theory of free turbulence”, *Proc. Roy. Neth. acad. Sci.*, Amsterdam **43** (1940) 1.
- [27] Cantor, B. A., Kanak, K. M., and Edgett, K. S., “Mars Orbiter Camera observations of Martian dust devils and their tracks (September 1997 to January 2006) and evaluation of theoretical vortex models”, *J. Geophys. Res.*, **111** (2006), E12002.

-
- [28] Carrier, G. F., "Swirling flow boundary layers", *J. Fluid Mech.*, **49** (1971), 133-144.
- [29] Charney, J. G., and Eliassen, A. A., "On the growth of the hurricane depression", *J. Atmos. Sci.*, **21** (1964), 68-75.
- [30] Chavas, D. R., Reed, K. A., and Knaff, J. A., "Physical understanding of the tropical cyclone wind-pressure relationship", *Nat. Commun.*, **8**, 1 (2017), 1360.
- [31] Church, C. R., and Snow, J.T., "Measurements of axial pressures in tornado-like vortices", *J. Atmos. Sci.*, **42** (1985)6, 576-582.
- [32] Church, C. R., Snow, J. T., and Baker, G. L., "Characteristics of Tornado-Like Vortices as a Function of Swirl Ratio: A Laboratory Investigation," *J. Atmos. Sci.*, **36** (1979), 1175.
- [33] Cortese, T., and Balachander, S., "Vortical nature of thermal plumes in turbulent convection", *Phys. Fluids A.*, **5** (12) (1993), 3226-3232.
- [34] Craik, A. D. D., "Exact vortex solution of the Navier-Stokes equations with axisymmetric strain and suction or injection", *J. Fluid Mech.*, **626** (2009), 291-306.
- [35] Chorlton, F., "Textbook on Dynamics", 1985.
- [36] Lacks, D. J., and Levandovsky, A., "Effect of particle size distribution on the polarity triboelectric charging in granular insulator systems", *Nat. Electron.*, **65** (2007), 107-112.
- [37] Davies-Jones, R. P., "The Dependence of Core Radius on Swirl Ratio in a Tornado Simulator", *J. Atmos. Sci.*, **30** (1973), 1427-1430.
- [38] Davies-Jones, R. P., and Wood, V. T., "Simulated Doppler Signatures of Evolving Tornado-Like Vortices", *J. Atmos. Ocean Technol.*, **23** **23** (2006), 1029-1048.
- [39] Davies-Jones, R. P., Burgess, D. W., and Lemon, L. R., "An atypical tornado-producing cumulonimbus", *Weather*, **31** 10 (1976), 337-347.
- [40] Davies-Jones, R., "A review of supercell and tornado dynamics", *Atmos. Res.*, **158** (2015), 274-291.
- [41] Davies-Jones, R., "Tornadoes", *Sci. Am.*, **273** (1995) 48.
- [42] Deissler, R. G "Models for some aspects of atmospheric vortices", *J. Atmos. Sci.*, **34** (1977), 1502-1517.
- [43] Deissler, R. G. and Boldman, D. R., "Tornado-like gravity-driven vortex model", Nasa Tnd-7738, 1974, [ntis no. n74-30050].

- [44] Eliassen, A., "On the Ekman layer in a circular vortex", *J. Meteorol. Soc., Japan*, **49** (1971), 784-789.
- [45] Eliassen, A., "Slow thermally or frictionally controlled meridional circulation in a circular vortex", *Astrophys. Norv.*, **5** (1951), 19.
- [46] Emanuel, K. A., "An air-sea interaction theory for tropical cyclones. Part I: Steady state maintenance", *J. Atmos. Sci.*, **43** (1986), 585-604.
- [47] Emanuel, K., "Genesis and maintenance of Mediterranean hurricanes", *Advances in Geosciences*, **2** (2005), 217-220.
- [48] Emanuel, K., Tropical Cyclone Energetics and Structure. In Atmospheric Turbulence and Mesoscale Meteorology, E. Fedorovich, R. Rotunno and B. Stevens, editors, Cambridge University Press, 280 pp. Reprinted here with permission, 2004.
- [49] Emanuel, K.A., Climate variations and hurricane activity: Some theoretical considerations, Hurricanes, Climate and Socioeconomic Impacts. H.F. Diaz and R.S. Pulwarty (eds.), Springer Verlag, Heidelberg, 1997, 55-65.
- [50] Emanuel, K.A., "Some aspects of hurricane inner-core dynamics and energetics", *J. Atmos. Sci.*, **54** (1997), 1014-1026.
- [51] Emanuel, K.A., "The finite-amplitude nature of tropical cyclogenesis", *J. Atmos. Sci.*, **46** (1989), 3431-3456.
- [52] Emanuel, K. A. "Sensitivity of tropical cyclones to surface exchange coefficients and a revised steady-state model incorporating eye dynamics", *J. Atmos. Sci.*, **52** (1995). 3639-3976.
- [53] Fenton, L. K., and Lorenz, R., "Dust devils height and spacing with relation to the martian planetary boundary layer thickness", *Icarus*, **260** (2015), 246-262.
- [54] Fiedler, B. H., "A Theory for the Maximum Windspeed in Tornado-like Vortices", *J. Atmos. Sci.*, **43** (21) (1986), 2328-2340.
- [55] Fiedler, B. H., "Compressibility and windspeed limits in tornadoes", *Atmosphere-Ocean*, **35** (1997), 93-107.
- [56] Fiedler, B. H., "The thermodynamic speed limit and its violation in axisymmetric numerical simulations of tornado-like vortices", *Atmos. Ocean*, **32** (1994), 335-359.
- [57] Fiedler, B. H., "On modeling tornadoes in isolation from the parent storm", *Atmos. Ocean*, **33** (1995), 501-512.
- [58] Fiedler, B. H., "Wind-speed limits in numerically simulated tornadoes with suction vortices", *Quart. J. Roy. Meteor. Soc.*, **124** (1998), 2377-2392.

- [59] Flowe, W. D., "Sand devils", U. K. Meteorological Office Tech. Note 5, No. 71, 1936, 16.
- [60] Frisius, T., "An atmospheric balanced model of an axisymmetric vortex with zero potential vorticity", *Tellus A: Dynamic Meteorology and Oceanography*, **57** (2005), 55-64.
- [61] Frisius, T., "Surface flux induced tropical cyclogenesis within an axisymmetric atmospheric balanced model", *Quart. J. Roy. Meteor. Soc.*, **132** 621(2006), 2603-2623.
- [62] Gall, R. L., "Internal Dynamics of Tornado-Like Vortices", *J. Atmos. Sci.*, **39** (1982), 2721-2736.
- [63] Gillmeier, S., Sterling, M., Henida, H, and Baker, C. J., "A reflection on analytical tornado-like vortex flow models", *J. Wind. Eng. Ind. Aerodyn.*, **174** (2018), 10-27.
- [64] Gillmeier, S., Stterling, M., and Hemida, H, An Analysis of the Influence of a Tornado Generator's Geometry on the Flow Field. In: 8th International Colloquium on Bluff Body Aerodynamics and Applications, Boston, MA, (2016).
- [65] Grasso, L. D. and Cotton, W. R., "Numerical simulation of a tornado vortex", *J. Atmos. Sci.*, **52** (1995), 1192-1203.
- [66] Greenspan, H. P., *The Theory of Rotating Fluids*, (Cambridge Monographs on Mechanics and Applied Mathematics) VII, 327 S. m. Fig. u. Abb. Cambridge University Press, 1968.
- [67] Gutman, William., "Homöopathische Forschung", *Zeitschrift für Klassische Homöopathie*, **01** (1957), 3-12.
- [68] Haan Jr, F. L., Sarkar, P. P., and Gallus, W. A., "Design, Construction and Performance of a Large Tornado Simulator for Wind Engineering Applications", *Engineering Structures*, **30** (2008), 1146.
- [69] Haan, Jr., Fred, L., Partha, P. S., and William, A. G., "Design, construction and performance of a large tornado simulator for wind engineering applications", *Engineering Structures*, **30** (2007), 1146-1159.
- [70] Hangan, H., and Kim, J., "Swirl Ratio Effects on Tornado Vortices in Relation to the Fujita Scale", *Wind and Structures*, **11** (2008), 291.
- [71] Harlow, Francis, H., and Stein, R. L., "Structural analysis of tornado-like vortices", *J. Atmos. Sci.*, **31** (1974), 2081-2098.
- [72] Hashemi, T. P., Gurka, R., and Hangan, H., "Experimental Investigation of a Tornaod-Like Vortex Dynamics with Swirl Ratio: The Mean and Turbulent Flow Fields", *J. Wind Eng. Ind. Aerodyn.*, **98** (2010), 936-944.

- [73] Hashemi-Tari, Pooyan, R. G., and Hangen, H., “Swirl ratio effects on tornado-like vortices”, APS Division of Fluid Dynamics Meeting Abstracts., 2007.
- [74] Hess, G. D., and Spillan, K. T., “Characteristics of Dust Devils in Australia”, *J. Applied Meteorology*, **29** (1990), 498- 507.
- [75] Hoecker, W. H., Jr., “Three dimensional pressure pattern of the Dallas tornado and some resultant implications”, *Mon. Wea. Rev.*, **89** (1961), 533-542.
- [76] Horton, W., Miura, H., Onishchenko, O., Couedel, L., Arnas, C., Escarguel, A., Benkadda, S., and Fedun V., “Dust devil dynamics”, *J. Geophysical Res.*, **121** (2016), 7197-7214.
- [77] Hsu, C. J., and Plumb, R. A., “Non-axisymmetric thermally driven circulations and upper-tropospheric monsoon dynamics”, *J. Atmos. Sci.*, **57** (2000), 1255-1276.
- [78] Ito, J., and Niino, H., “Particle image velocimetry of a dust devil observed in a desert”, *SOLA*, **10** (2014), 108-111.
- [79] Ives, R. L., “Behavior of the dust devil”, *Amer. Meteor. Soc.*, **28** (1947), 168-174.
- [80] Kanak, K. M., “Numerical simulation of dust devil-scale vortices”, *Q. J. R. Meteorol. Soc.*, **131** (2005), 1271-1292.
- [81] Kanak, K. M., Lilly, D. K., and Snow, J. T., “The formation of vertical vortices in the convective boundary layer”, *Q. J. R. Meteorol. Soc.*, **126** (2000), 2789-2810.
- [82] Karstens, C. D., Samaras, T. M., Lee, B. D., Gallus Jr, W. A., and Finley, C. A., “Near-ground pressure and wind measurements in tornadoes”, *Mon. Wea. Rev.*, **138** (2010), 2570-2588.
- [83] Kepert, J. D, Wang, Y., “The dynamics of boundary layer jets within the tropical cyclone core. Part II: Nonlinear enhancement”, *J. Atmos. Sci.*, **58** (2001), 2485-2501.
- [84] Kieu, H. Q., and Zhang, Da-Lin, “An analytical model for the rapid intensification of tropical cyclones”, *Q. J. R. Meteorol. Soc.*, **135** (2009), 1336-1349.
- [85] Kim, Y. C., and Matsui, M., “Analytical and empirical models of tornado vortices: A comparative study”, *J. Wind. Eng. Ind. Aerodyn.*, **171** (2017), 230-247.
- [86] Klemp, J. B., and Wilhelmson, R. B., “The simulation of three-dimensional convective storm dynamics”, *J. Atmos. Sci.*, **35** (1978), 1070–1096.

-
- [87] Kok, J. F., and Renno, N. O., “Enhancement of the emission of mineral dust aerosols by electric forces”, *Geophys. Rev. Lett.*, **33** (2006), (RG3003).
- [88] Kolomenkiy, D., and Moffatt, H. K., “Similarity solutions for unsteady stagnation point flow”, *J. Fluid Mech.*, **711** (2012), 394-410.
- [89] Kuai, L., Haan, F. L., and Galluss, W. A., “CFD Simulations of the Flow Field of a Laboratory-Simulated Tornado for Parameter Sensitivity Studies and Comparison with Field Measurements”, *Wind and Structures*, **11** (2008), 1-22.
- [90] Kuo, H. L., “Axisymmetric flows in the boundary layer of a maintained vortex”, *J. Atmos. Sci.*, **28** (1971), 20-41.
- [91] Kuo, H. L., “Motions of vortices and circulating cylinder in shear flow with friction”, *J. Atmos. Sci.*, **26** (1969), 390-398.
- [92] Kuo, H. L., “Note on the similarity solutions of the vortex equations in an unsteady stratified atmosphere”, *J. Atmos. Sci.*, **24** (1967), 95-97.
- [93] Kuo, H. L., “On the dynamics of convective atmospheric vortices”, *J. Atmos. Sci.*, **23** (1966), 25-42.
- [94] Lamb, H., “Hydrodynamics”, Cambridge University Press. Cambridge, UK, 1932.
- [95] Larcheveque, M., and Chaskalovic, J., “A new mathematical model applied to tornado genesis”, *Int. J. Eng. Sci.*, **32** (1994), 187-193.
- [96] Lee, J., and Samaras, T., “Pressure measurements at the ground in an F-4 tornado”, Proceedings of the 22nd Conference on Severe Local Storms, Anonymous Hyannis, MA, 2004.
- [97] Lee, W. C., and Wurman, J., “Diagnosed Three-Dimensional Axisymmetric Structure of the Mulhall Tornado on 3 May 1999”, *Amer. Meteor. Soc.*, **62** (2005), 2373-2393.
- [98] Leonov, A. I., “Analytical models for hurricanes”, *Open Journal of Marine Science*, **4** (2014), 194-213.
- [99] Leray, J., “Sur le mouvement d’un liquide visqueux emplissant l’espace”, *Acta Math.*, **63** (1934) 193-248.
- [100] Levenson, V. H., and Sinclair, P. ., “Waterspout Wind, Temperature and Pressure Structure Deduced from Aircraft Measurements”, *Mon. Wea. Rev.*, **105** (1977), 725-733.

-
- [101] Lewellen, D. C., Lewellen, W. S., and Xia, J., “The influence of a Local Ratio on Tornado Intensification near the Surface”, *J. Atmos. Sci.*, **57** (2000) (5), 527-544.
- [102] Lewellen, W. S., “Theoretical models of the tornado vortex. Proceeding of symposium of tornadoes”, R. E. Peterson, ed. Texas Technical University, Lubbock, 1976, 107-143.
- [103] Lewellen, W. S., “Tornado vortex theory”, In: Churh C., Burgess D., Doswell C., Davies-Jones R. (eds.). The tornado its structure, dynamics, prediction, and hazards.” American geophysical union, Washington DC, (1993), 325-360.
- [104] Lewellen, W. S., and Lewellen, D .C., “Large-Eddy Simulation of a Tornado’s Interaction with the Surface”, *J. Atmos. Sci.*, **54** (1997), 581-605.
- [105] Liu, Z., and Ishihara, T., “Study of the effects of translation and roughness on tornado-like vortices by large-eddy simulations”, *J. Wind Eng. Ind. Aerodyn.*, **151** (2016), 1-24.
- [106] Long, R. R., “Viscous Motion in a Viscous Fluid”, *J. Meteorol.*, **15** (1957), 108-112.
- [107] Long, Robert R., “A vortex in an infinite viscous fluid”, *J. Fluid Mech.*, **11** (1961).
- [108] Lorenz, R. D., “Vortex Encounter Rates with Fixed Barometer Stations: Comparison with Visual Dust Devil Counts and Large-Eddy Simulations”, *J. Atmos. Sci.*, **7** (2014), 4461-4472.
- [109] Lund, D. E., and Snow, J. T., “Laser Doppler velocimeter measurements in tornadolike vortices”, *The Tornado: Its Structure, Dynamics, Prediction, and Hazards*, (1993), 297-306.
- [110] Makarieva, A. M., and Gorshkov, V. G., “Condensation-induced dynamics gausses in a mixture of condensable and non-condensable gases”, *Phys. Lett. A.*, **373**, (2009a), 2801-2804.
- [111] Makarieva, A. M., and Gorshkov, V. G., “Condensation-induced kinematics and dynamics of cyclones, hurricanes and tornadoes”, *Phys. Lett. A.*, **373** (2009b), 4201-4205.
- [112] Makarieva, A. M., and Gorshkov, V. G., “Radial profiles of velocity and pressure for condensation-induced hurricanes”, *Phys. Lett. A.*, **375** (2011), 1053-1058.
- [113] Makarieva, A. M., Gorshkov, V. G., and Nefiodov, A. V., “Condensation theory of stationary tornadoes”, *Phys. Lett. A.*, **375** (2011), 2259-2261.

- [114] Mattsson, J. O., Nihlen, T, and Yue, W., “Observations of dust devils in a semi-arid district of southern Tunisia”, *Weather*, **48** (1993), 359-363.
- [115] McEwan, A. D., “A laboratory demonstration of angular momentum mixing”, *Geophy. and Astrophy. Fluid Dynamics*, **5** (1973), 283-311.
- [116] McGinnigle, J. B., “Dust whirls in north-west Libya”, *Weather*, **21** (1966), 272-276.
- [117] Michaels, T. I., and Rafkin, S. C. R., “Large-eddy simulation of atmospheric convection on Mars”, *Q. J. R. Meteorol. Soc.*, **130** 599(2004), 1251-1274.
- [118] Michelson, I., “On dust devils. II. Linearized theory of conical turbomachines”, Ph.D. Thesis, California Institute of Technology, Pasadena, 1951.
- [119] Mishra, A. R., James, D. L., and Letchford, C. W., “Physical Simulation of a Single-Celled Tornado-Like Vortex, Part B: Wind Loading on a Cubical Model”, *J. Wind Eng. Ind. Aerodyn.*, **96** (2008), 1258-1273.
- [120] Moffatt, H. K., “The interaction of skewed vortex pairs: a model for blow-up of the Navier-Stokes equations”, *J. Fluid Mech.*, **409**(2000), 51-68.
- [121] Natarajan, D., and Hangan, H., “Large Eddy Simulations of Translation and Surface Roughness Effects on Tornado-Like Vortices”, *J. Wind Eng. Ind. Aerodyn.*, **104** (2012), 577-584.
- [122] Nolan, D. S. and Farrell, B. F., “The structure and dynamics of tornado-like vortices”, *J. Atmos. Sci.*, **56** (1999), 2908-2936.
- [123] Nolan, D. S., Dahl, N. A., Bryan, G. H., and Rotunno, R., “Tornado vortex structure, intensity, and surface wind gusts in large-eddy simulations with fully developed turbulence”, *J. Atmos. Sci.*, **74** (2017), 1573-1597.
- [124] Nolan, D. S., Moon, Y., and Stern, D. P., “Tropical cyclone intensification from asymmetric convection: Energetics and efficiency”, *J. Atmos. Sci.*, **64** (2007), 3377-3405.
- [125] Ogura, Y., “Frictionally controlled, thermally driven circulations in a circular vortex with applications to tropical cyclones”, *J. Atmos. Sci.*, **21** (1964), 610-621.
- [126] Oke, A. M. C., Tapper, N. J., and Dunkerley, D., “Willy-willies in the Australian landscape: The role of key meteorological variables and surface conditions in defining frequency and spatial characteristics”, *Journal of arid environments*, **71** (2007), 201-215.
- [127] Onishchenko, O.G., Horton, W., Pokhotelov, O. A. and Fedun, V., “Explosively growing vortices of unstably stratified atmosphere”, *J. Geophysical Res.*, **121** (2016), 11264-11268.

- [128] Ooyama, K., "Numerical simulation of the life cycle of tropical cyclones", *J. Atmos. Sci.*, **26** (1969), 3-40.
- [129] Ooyama, K.V., "Conceptual evolution of the theory and modeling of the tropical cyclone", *J. Meteor. Soc. of Japan*, Ser. II, **60** (1982), 369-380.
- [130] Oseen, C. W., "Überwirbelbewegunge in einerreihen-den ussigkeit", *Ark. J. Mat. Astrom. fy.*, **7 9** (1912), 663.
- [131] Pandey, S. K. and Maurya, J. P., "Exploration of Characteristics Governing Dynamics of Whirlwinds: Application to Dust Devils", *Z. Naturforsch. A.*, **72** (2017), 763-778.
- [132] Pauley, R. L., "Laboratory Measurements of Axial Pressures in Two-Celled Tornado-like Vortices", *J. Atmos. Sci.*, **446** (1989), 3392-3399.
- [133] Pauley, R. L., Church, C. R., and Snow, J. T., "Measurements of maximum surface pressure deficits in modeled atmospheric vortices", *J. Atmos. Sci.*, **39** (1982), 369-377.
- [134] Persing, J., and Montgomery, M. T., "Hurricane superintensity", *J. Atmos. Sci.*, **60** (2003), 2349-2371.
- [135] Raasch, S., and Franke, T., "Structure and formation of dust devil-like vortices in the atmospheric boundary layer: A high-resolution numerical study", *J. Geophysical Res.*, **116**(2011), D16120, 1-16.
- [136] Rafkin, S., Jemmett-Smith, B., Fenton, L., Lorenz, R., Takemi, T., Ito, J., and Tyler, D., "Dust devil formation", *Space Sci. Rev.*, **203** (2016), 183-207.
- [137] Rankine, W. J. M., *A Manual of Applied Physics*, 10th ed. Charles Griff and Co., (1882), 663.
- [138] Renno, N. O., Burkett, M. L., and Larkin, M. P., "A Simple Thermodynamical Theory for Dust Devils", *J. Atmos. Sci.*, **55** (1998), 3244-3252.
- [139] Rosenthal, S. L., "A theoretical analysis of the field of motion in the hurricane boundary layer", *Nat. HUM. Rea. Proj. Rep***56**,1962, 12.
- [140] Rott, N., "On the viscous core of a line vortex", *Z. Angew. Math. Phys.*, **9** (1958), 543-553.
- [141] Rotunno, R., "An investigation of a Three-Dimensional Asymmetric Vortex", *J. Atmos. Sci.*, **41** (1986), 283-298.
- [142] Rotunno, R., "Numerical Simulation of a Laboratory Vortex", *J. Atmos. Sci.*, **34** (1977), 1942-1956.
- [143] Rotunno, R., "A study in tornado-like vortex dynamics", *J. Atmos. Sci.*, **36** (1979), 140-155.

-
- [144] Rotunno, R., “An investigation of a three-dimensional asymmetric vortex”, *J. Atmos. Sci.*, **41**, (1984), 283-298.
- [145] Rotunno, R., “The Fluid Dynamics of Tornadoes”, *Annu. Rev. Fluid Mech.*, **45**(2013), 59-84.
- [146] Ryan, J. A., and Carroll, J. J., “Dust Devil Wind Velocities: Mature State”, *J. Geophys. Res.*, **75** (3) (1970), 531-541.
- [147] Ryan, J.A., “Relation of dust devil frequency and diameter to atmospheric temperature”, *J. Geophys. Res.*, **77** (1972), 7133–7137.
- [148] Sabareesh, G. R., Matsui, M., and Tamura, Y., “Dependence of surface pressures on a cubic building in tornado like flow on building location and ground roughness”, *J. Wind Eng. Ind. Aerodyn.*, 103 **103** (2012), 50-59.
- [149] Schubert, W. H., and Hack, J. J., “Transformed Eliassen balanced vortex model”, *J. Atmos. Sci.*, 40,**40** (1983), 1571-1583.
- [150] Schubert, W. H., and Hack, J. J., “Internal stability and tropical cyclone development”, *J. Atmos. Sci.*, **339** (1982), 1687-1697.
- [151] Serrin, J., “The swirling vortex. Philos”, *Trans. R. Soc. London, Ser., a*, **271**(1972), 325-360.
- [152] Shapiro, L. J., and Willoughby, H. E., “The response of balanced hurricanes to local sources of heat and momentum”, *J. Atmos. Sci.*, **39** (1982), 378-394.
- [153] Shapiro, Y. L. K., “On vortex formation in multicell convective clouds in a shear-free environment”, *Atmos. Res.*, **33** (1994), 125-136.
- [154] Simpson, M. W., and Glezer, A., “Buoyancy-induced, columnar vortices”, *J. Fluid Mech.*, **804** (2016), 712-748.
- [155] Sinclair, P. C., “The Lower Structure of Dust Devils”, *J. Atmos. Sci.*, **30** (1973), 1599-1619.
- [156] Sinclair, P. C., “General characteristic of dust devils”, Ph.D. thesis, Univ. of Ariz., Tucson (1966).
- [157] Sinclair, P. C., “On the rotation of dust devils”, *Bull. Am. Meteorol. Soc.*, **46** (1965), 388-391.
- [158] Sinclair, P.C., “Atmosphere-Surface Exchange of Particulate and Gaseous Pollutants”, ed. by R. Engelman, G. Sehmel (ERDA, Oak Ridge), (1976), 497–527
- [159] Sinclair, P.C., “General characteristics of dust devils”, *J. Appl. Meteorol.*, **8**(1969), 32–45.

- [160] Sinclair, P.C., “Some preliminary dust devil measurements”, *Mon. Weather Rev.*, **22** (1964), 363–367.
- [161] Smith, R. K., “The surface boundary layer of a hurricane”, *Tellus*, **20** (1968), 473–483.
- [162] Smith, R. K., Montgomery, M.T., and Vogl, S., “A critique of Emanuel’s hurricane model and potential intensity theory”, *Quart. J. Roy. Meteor. Soc.*, **134** (2008), 551-561.
- [163] Smith, R. K., and M. T. Montgomery, “Understanding hurricanes”, *Weather*, **71** (2016), 219–223.
- [164] Snow, J. T., and Lund, D. E., “A second generation tornado vortex chamber at Purdue University”, Preprints, 13th Conf. Severe Local Storms, Tulsa, Oklahoma, American Meteorological Society, (1988).
- [165] Snow, J. T., Church, C. R., and Barnhart, B. J., “An Investigation of the Surface Pressure Fields beneath Simulated Tornado Cyclones”, *J. Atmos. Sci.*, **37**(1980), 1013-1026.
- [166] Snow, J.T., and McClelland, T.M., “Dust devils at White Sands missile range”, New Mexico. 1. Temporal and spatial distributions, (1990).
- [167] Stern, D. P., and Zhang, F., “The warm core structure of Hurricane Earl (2010)”, *J. Atmos. Sci.*, **73** (2016), 3305-3328.
- [168] Sullivan, Roger D., “A two-cell vortex solution of the Navier-Stokes equations”, *J. Aerospace Sci.*, **26** (1959), 767-789.
- [169] Sundqvist, H., “Numerical simulation of the development of tropical cyclones with a ten-level model. Part I”, *Tellus*, **22** (1970), 359-390.
- [170] Tanamachi, R. L., Bluestein, H. B., Moore, S. S., and Madding, R. P., “Infrared thermal imagery of cloud base in tornadic supercells”, *J. Atmos. Ocean. Technol.*, **23** (2006), 1445-1461.
- [171] Tanamachi, R. L., Bluestein, H. B., Xue, M., Lee, W. C., Orzel, K. A., Frasier, S. J., and Wakimoto, R. M., “Near-surface vortex structure in a tornado and in a sub-tornado-strength convective-storm vortex observed by a mobile, W-band radar during VORTEX2”, *Mon. Wea. Rev.*, **141** (2013), 3661-3690.
- [172] Tang, Z., Feng, C., Wu, L., Zuo, D., and James, D. L., “Characteristics of Tornado-Like Vortices Simulated in a Large-Scale Ward-Type Simulator”, *Boundary-Layer Meteorology*, **166**, 2(2018), 327-350.
- [173] Taylor, G. I., “On the dissipation of eddies reprinted in the sciatic papers of sir”, Georey Ingram Tayler, (1918).

- [174] Trapp, R. J., Davies-Jones, R. P., “Tornado genesis with and without a Dynamic Pipe Effect”, *J. Atmos. Sci.*, **54** (1997), 113-133.
- [175] Tratt, D.M., Hecht, M.H., Catling, D.C., Samulon, E.C., and Smith, P.H., “In situ measurement of dust devil dynamics: Toward a strategy for Mars”, *J. Geophysical Res.: Planets*, **108**(2003), E11.
- [176] Vatistas, G. H, Kozel, V., and Mih, C. W., “A simpler model for concentrated vortices”, *Exp. Fluids*, **11** (1991), 171-199.
- [177] Vatistas, G. H., “New model for intense self-similar vortices”, *J. Prop. Power*, **14** (1998), 462-469.
- [178] Vatistas, G. H., “Analysis of fine particle concentrations in a combined vortex”, *J. Hydr. Res.*, **27** (1989), 417-427.
- [179] Vatistas, G. H., Lin, S. and Kwok, C. K., “Theoretical and experimental studies on vortex chamberows”, *AIAA J.*, **24** (1986), 635-642.
- [180] Vyas, A. B., Majdalani, J. and Chiaverini, M. J., “The bidirectional vortex. Part 3: Multiple solutions”, In 39th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Huntsville, AL: AIAA Paper 2003-5054, (2003).
- [181] Wakimoto, R. M., and Wilson, J. W., “Non-supercell tornadoes”, *Mon. Wea. Rev.*, **117** (1989), 1113-1140.
- [182] Wang, J., Cao, S., Pang, W., and Cao, J., “Experimental study on effects of ground roughness on flow characteristics of tornado-like vortices”, *Boundary-Layer Meteorology*, **162** (2017), 319-339.
- [183] Ward, N. B., “Temperature inversion as a factures in the formation of tornadoes”, *Bull. Am. Meteorol. Soc.*, **37** (1956), 145-151.
- [184] Ward, N. B., “The exploration of certain features of tornado dynamics using a laboratory model”, *J. Atmos. Sci.*, **29** (1972), 1194-1204.
- [185] Wicker, L. J., and Wilhelmson, R. B., “Simulation and analysis of tornado development and decay within a three-dimensional supercell thunderstorm”, *J. Atmos. Sci.*, **52** (1995), 2675-2703.
- [186] Wilhelmson, R. and Ogura, Y., “The pressure perturbation and the numerical modeling of a cloud”, *J. Atmos. Sci.*, **29** (1972), 1295-1307.
- [187] Williams, N. R., “Development of dust devils and similar scale vortices”, *Bull. Amer. Meteor. Soc.*, **29** (1948), 106-117.
- [188] Willis, G. E., and Deardorff, J. W., “Laboratory observations of turbulent penetrative-convection planforms”, *J. Geophys. Res., Oceans*, **84** (1979), 295-302.

- [189] Willoughby, H. E., “Forced secondary circulations in hurricanes”, *J. Geophys. Res., Oceans*, **84** (1979), 3173-3183.
- [190] Winn, W. P., Hunyady, S. J., and Aulich, G. D., “Pressure at the ground in a large tornado”, *J. Geophys. Res.*, **104** (1999), 22067-22082.
- [191] Wilson, T., and Rotunno, R., “Numerical simulation of a laminar end-wall vortex and boundary layer”, *The Physics of Fluids*, **29** (1986), 3993-4005.
- [192] Wirth, V., and Dunkerton, T. J., “A unified perspective on the dynamics of axisymmetric hurricanes and monsoons”, *J. Atmos. Sci.*, **63** (2006), 2529-2547.
- [193] Wirth, V., and Dunkerton, T. J., “The dynamic of eye formation and maintenance in axisymmetric diabatic vortices”, *J. Atmos. Sci.*, **66** (2009), 3601-3620.
- [194] Wirth, V., “Thermally forced stationary axisymmetric flow on the f plane in a nearly frictionless atmosphere”, *J. Atmos. Sci.*, **55** (1998), 3024-3041.
- [195] Wood, V. T., and Brown, R. A. “Simulated tornadic vortex signatures of tornado-like vortices having one-and two-celled structures”, *J. Appl. Meteor. Climatol.*, **50** (2011), 2338–2342.
- [196] Wood, V. T., and White, L. W., “A new parametric model of vortex tangential-wind profiles: development, testing and verification”, *J. Atmos. Sci.*, **68** (2011), 990-1006.
- [197] Wu, J. Z., Ma, H. Y., and Zhou, M. D., “Vorticity and Vortex Dynamics”, Berlin: Springer, (2006).
- [198] Wurman, J., and Gill, S., “Fine-Scale Radar Observations of the Dimmit Texas (2 June 1995) Tornado”, *Mon. Wea. Rev.*, **128** (2000), 2135-2164..
- [199] Wurman, J., and Samaras, T., “Comparison of in-situ pressure and DOW Doppler winds in a tornado and RHI vertical slices through 4 tornadoes during 1996-2004”, Preprints, 22nd Conf. on Severe Local Storms, Hyannis, MA, Amer. Meteor. Soc., **15**(2004).
- [200] Wurman, Joshua, Straka, J. M., and Rasmussen, E. N., “Fine-scale Doppler radar observations of tornadoes”, *Science*, **272** (1996), 1774-1777.
- [201] Xi, J., Lewellen, W. S., and Lewellen, D. C., “Influence of Mach number on tornado corner flow dynamics”, *J. Atmos. Sci.*, **60** (2003), 2820-2825.
- [202] Xu, Z., and Hangan, H., “An Inviscid Solution for Modeling of Tornado-Like Vortices”, *ASME J. Mech.*, **76** (2009), 031011.

-
- [203] Yanai, M., "Formation of tropical cyclones", *Reviews of Geophysics*, **2** (1964), 367-414.
- [204] Yih, C. S., "Tornado-like flows", *Phys. Fluids*, **19** (2007), 076601.
- [205] Ying, S. J., and Chang, C. C., "Exploratory Model Study of Tornado-Like Vortex Dynamics", *J. Atmos. Sci.*, **27**(1970), 3-14.
- [206] Zhao, Y. Z., Gu, Z. L., Yu, Y. Z., Ge, Y., Li, Y., and Feng, X., "Mechanism and large eddy simulation of dust devils", *Atmospheric-Ocean* , **42** (2004), 61-84.
