



Dr. Joachim P. Küttner Aeronautical pioneer, record pilot, meteorologist

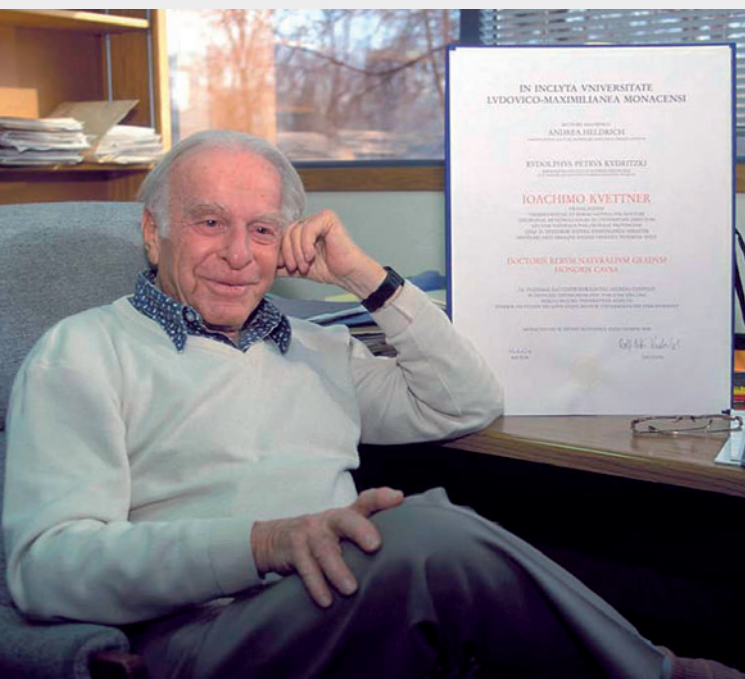
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PHOTOS: JOACHIM KÜTTNER COLLECTION, BRUNO NEININGER, RENÉ HEISE, KLAUS OHLMANN



Since February 24th, 2011, meteorologists, atmospheric scientists and pilots around the world have to get along without an indispensable and admired physicist and always helping mentor.



It was on this day that, at the age of 102 years, Dr. Joachim P. Küttner passed away in his second home in Longmont near Boulder, Colorado, USA. During 80 years he had dedicated his life and work to understand the earth's atmosphere, its rules and forces. Being curious, creative and innovative, he always thought about conclusions that would be useful for mankind. Being a hundred years old, he still worked with the OSTIV-"Mountain Wave Project". His advice concerning ongoing research questions, like turbulence measurement in all parts of the atmosphere and comparing the results to different models of forecasting helped his colleagues to follow up with their projects.

Thinking of Dr. Joachim P. Küttner means...

... thinking of a young man, growing up in a family with lots of cultural and academic interests. His mother, who had graduated from university, also was an appreciated violinist. His father worked as a well known surgeon. The family lived in a building owned by the weather service in Breslau, Germany. Already at the age of 17, Joachim was accepted at the

Breslau University.

... thinking of a young law student, who at the age of 21, in 1931 completes a doctorate in law and economics but then decides to switch to physics. Meteorology became his favorite subject of study. Law studies, by that time, had gone too much into politics.

... thinking of a talented flight-student, who in 1931 takes soaring-lessons with Wolf Hirth in Grunau. This is where he first experiences the "long wave", nicknamed "Moazagotl". He is fascinated by this weather phenomenon which seemed to be stationary in an altitude between 13000 and 23000 feet above the Riesengebirge mountains near the German-Czech border.

... thinking of an enthusiastic glider instructor, who teaches soaring in Northern Europe during the years of 1935 to 1937. He participates in air shows in Norway, Finland and Sweden, demonstrates soaring and studies the soaring conditions all the way up to Lapland. He finds updraft above water, initiated by wind shear and reports on this (new) phenomenon.

... thinking of a pioneer in atmospheric research, who gathers soaring-pilots and friends and systematically starts charting wave areas around Hirschberg. A fleet of gliders soars out to copy tons of data. In 1939 Küttner earns his second doctor's degree in meteorology in Hamburg, writing about the "Genesis of the foehn-Wave". It is the first scientific and correct reporting of lee-waves, and it is still in effect today.

... thinking of a pilot and chief of flight testing, who does lots of measuring- and experimental-flights for Messerschmitt, Dornier and Zeppelin during World War II. He flies the Me 321 cargo glider and its powered version, the military transport aircraft "Gigant" (Messerschmitt Me 323). In 1944, he luckily survives an accident, which had been caused by fluttering, during a test flight in a Me 323.

... thinking of a meteorologist, who after the end of World War II is assigned to rebuild the destroyed meteorological observatory on the highest German mountain Zugspitze. He completes this task being helped by the American occupying forces and working under their custody, managing the observatory until 1948.

... thinking of a man who is constantly observing nature and who uses his time on Zugspitze to follow the maneuvers of passing-by birds while watching the trail of smoke rising from the observatory chimney. His analysis of soaring birds in updrafts at

10000 feet above sea level qualify him to teach as a professor at the University of Munich. He receives a postdoctoral lecture qualification writing about the "Dynamics of Mountain Clouds".

Studying air flow across mountains

In 1948 Dr. Küttner was called to work with the Geophysical Research Directorate in Cambridge, Massachusetts, USA. The department was looking for an expert, a meteorologist and a glider pilot, experienced in high altitude flying. The research facility needed him to contribute to the "Sierra Wave Project". Increasing commercial air traffic above the United States had caused a rising number of aviation accidents. Several programs were ongoing to find out about air currents - especially above mountain ranges. By investigating air currents and strong turbulence in high altitudes and mapping the jet stream winds found in the toposphere layer of the atmosphere, the Sierra Wave Project aimed to determine the reasons for the increasing number of flying accidents. Bishop airfield, located in the Owens Valley in the Californian Sierra Nevada was named to be the home base for research flights. An ideal location during lee wave conditions! Necessary flights could mostly be done in gliders.

Dr. Küttner accomplished a number of those flights during the "Sierra Wave Project". Some of them are worth mentioning:

- On March 5, 1951, Bob Symons and co-pilot Joachim Küttner, while flying a Pratt-Read LNE-1 two-seat sailplane designed for military training use, established a world record altitude of 11780 meters (38648 feet).
- On March 19, 1952, Küttner flew 600 kilo-

meters (373 miles) from Bishop to Williams, Arizona in four hours. He used a tail wind and wave lift to soar over mountain ranges at an average altitude of about 6000 meters (19685 feet). Küttner was enthusiastic about this kind of flying and predicted that long-distance flights of more than 2000 kilometers would soon be possible using wave lift.

- On April 14, 1955, during a successor to the Sierra Wave Project called the Jet Stream Project, Küttner set an altitude record for a German pilot that remains valid today. Flying solo in a Schweizer SGS 2-25 glider, he ascended to 13015 meters (42700 feet) above sea level with an altitude gain of 9031 meters (29570 feet).

By 1954 he had accomplished all of the necessary flights to be awarded with a gold badge including three diamonds; the world's highest achievement.

In 1955 the international FAI gliding commission decorated Dr. Küttner with the "Lilienthal-Medal" for his efforts in developing the soaring sport. He was the first pilot to earn the newly edited "OSTIV-Plaque" in 1958, the highest award of the international working organization for science and technology of soaring. The "OSTIV-Plaque" is given to the person that has made the highest contribution to develop technique and/or science of glider flying during the past years. Küttner's flights and his conclusions during the "Sierra Wave Project" plus his coachwork as the new chief of OSTIV's research section and its "Meteorological Panel" from 1952 to 1981 were well worth the award! In 1981, the Soaring Society of America inducted Küttner into the National Soaring Hall of Fame at the National Soaring

Left above: Küttner set a height-record on a Schweizer 2-25

Left: Expedition to Nepal, exploring the Himalaya with a Taifun 17E

Left below: Dr. Joachim Küttner and his honorary doctor diploma of Munic University

Right: This trophy and 10.000 Dollars donated by Dr. Küttner were given to Klaus Ohlmann for the first straight flight ranging 2000 kilometers





Left: 23rd, 2003, Takeoff in Calafate (Argentina), landing in San Juan (Argentina). Duration: 14:35 hrs. Distance: 2120 km

Below: On his long distance flights Klaus Ohlmann explored weather phenomena like this cold-front wave and severe turbulence caused by windshears between jet streams

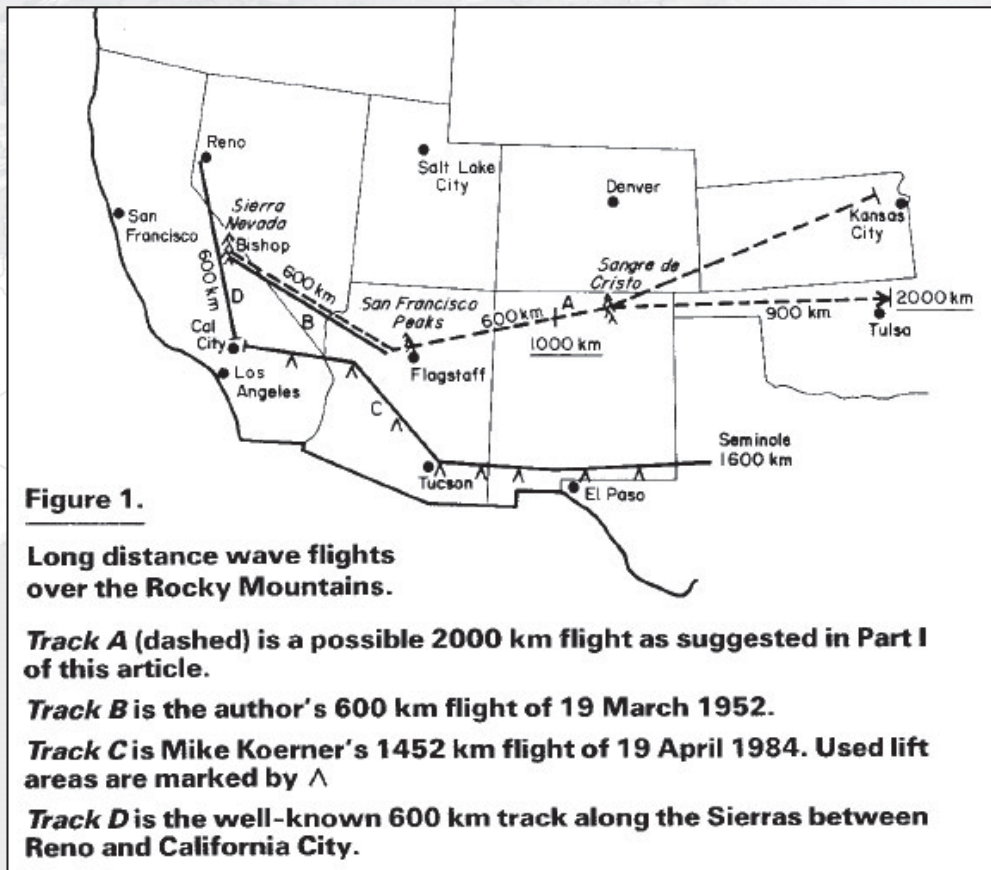
Museum in Elmira, New York. As in the 1960's manned space travel was about to start, Wernher von Braun asked Dr. Küttner to work with his team in Huntsville, Alabama. He accepted this offer and was now responsible for managing systems integration of carrier rockets with the space capsules used in the Mercury and Apollo programs.

In 1972 the World Meteorological Organization named him to be the International Director of Experiments accomplished by the "Global Atmospheric Research Program" (GARP). Its largest research at that time was the "Global Atlantic Tropical Experiment", in which 70 nations participated, including 30 research vessels and 13 research aircraft.

1985: Himalaya-Expedition

Dr. Joachim Küttner had the opportunity to participate in the "First Himalayan Soaring Expedition" in Nepal, which was organized by the Spanish glider pilot Alvaro de Orleans-Bourbon. In a powered glider "Valentin Taifun 17 E", he and his colleagues Dr. Bruno Neiningner (Switzerland) and Dr. Manfred E. Reinhardt (Germany) analyzed the circulation of katabatic winds and updraft at Kali Gandaki gorge. They took measurements on





Left: Based on his 600-km-flight in 1952, Dr. Küttner had the vision of soaring 2000 kilometers in straight line. In 1985 he published this summary to show how his idea could become reality

ground level and in the atmosphere to find out about daily exchange rates of air mass from the plains (2300 and 3300 feet above sea level) to the high mountains (13000 to 26000 feet above sea level) through the Kali Gandaki Gorge. The world's deepest gorge leads from north to south through the Himalayan Range and so forms a wind tunnel between the massifs of Dhāulagiri (26795 feet) and Annapurna (26545 feet) into the high Tibetan Plateau (13100 feet). Küttner, then 76 years old, participated in two measuring flights with Alvaro de Orleans-Bourbon as pilot.

Beginning 1986, Dr. Küttner worked with the National Center for Atmospheric Research (NCAR) and the University Corporation for Atmospheric Research UCAR in Boulder, Colorado. Worldwide he took part in many scientific research programs into the 21st century. Starting in 2004, he worked with T-REX, a program exploring terrain induced rotors, but his dedication during the last ten years was to get further behind the structure of lee waves.

Looking back at his 600-km-flight from Bishop to Williams and his prediction of potential 2000-km-flights in similar conditions using tailwinds, glider pilots all over the world were searching for adequate routes and terrain. The question was to find a working

combination of orography, a wide area with constant, good weather and sufficient daylight time to plan a straight out 2,000-km-flight. In support of this vision Dr. Küttner donated a prize named "OSTIV-Award, Joachim Küttner-Prize and -trophy for 2000 km straight distance soaring flights" in 1987.

Result of systematic research

It took several attempts before in 1999 a group of the OSTIV-"Mountain Wave Project" (MWP) travelled to the Argentinean Andes. The idea was to check out its wave systems and find out about a coherence between the orography of the world's longest mountain range, weather conditions (constant westerly flow) and long daylight hours. The southernmost flight were 1550 kilometers straight down to Rio Grande (Tierra del Fuego). Reaching the goal now seemed to be possible.

The German MWP-pilot Klaus Ohlmann was the first pilot to soar 2000 kilometers in a straight line. On November 23rd, 2003, sixteen years after the first announcement of the Küttner-Prize, Joachim Küttner was delighted to receive the big news. At the Soaring Convention in Atlanta in February 2004, the 95-year-old man was pleased to hand out "his" trophy to Klaus Ohlmann.

This flight did not happen by accident: It was the result of a systematic research and exploration of atmospheric conditions. Before the 2,000-km-flight was completed, a large number of flights had revealed the conditions in different levels of altitude. MWP collected and edited important data to ameliorate forecasts and existing weather models, also improving information to the commercial air traffic about the structure and appearance of different kinds of turbulence.

On March 30th, 2010 The President of the Federal Republic of Germany, Dr. Horst Köhler, officially recognized Dr. Joachim Küttner for his lifetime achievement and awarded him with the Officer's Cross of the Order of Merit of the Federal Republic of Germany. Because of his exceptional and tireless assignment in air and space research, and for his - far beyond Germany's borders - role as being an archetype scientist and pilot, the German Minister of Foreign Affairs had nominated Dr. Küttner to receive this award. The ceremony was held in Boulder, where the German Consul handed over the order of merit. Invited MWP members spoke, thinking of new record flights. Outside the building a strong foehn-wind was blowing and some pretty lenticular clouds had decorated Colorado's sunrise.