

Interview with Dr. James F. W. Purdom, formerly Senior Research Scientist at the Cooperative Institute for Research in the Atmosphere (CIRA). From 1998 to 2001, Dr. Purdom spent 4 years as Director of the Office of Research and Applications in NESDIS. In 1980, he was instrumental in creating CIRA at Colorado State University.

Interviewer: Doria B. Grimes, Senior Analyst, Riverside Technology, Inc.

Dr. Purdom: In 1968 I came to work at Federal Office Building 4 as a young 1st Lieutenant in the Air Force liaison office to the National Environmental Satellite Services (NESS, now called NESDIS); Major Al Molla was my boss. Our office was two doors down from NESDIS Head Quarters (Dave's office). Being in a small Air Force Office provided me with the opportunity to sit in on many of the NESS weekly staff meetings. Art Johnson¹ was his deputy. It was definitely interesting to see the dynamics of the various people Dave put together --- their intelligence, their integrity, and so forth. This was all in Building FB4 in Suitland, MD. It was like a big family. It was interesting to see how Dave and his staff worked. They knew they were part of something bigger than themselves. You could see this at the staff meetings.

I can remember that Dave Johnson always had an “open door” and I could drop in anytime. Alda Payne, his secretary, would pop her head in and announce me, and I would come in and sit down. I was looking at satellite imagery trying to identify severe storms, and I enjoyed our conversations. I remember him telling me once that while Bill Smith was an optimist, I was an optimist's optimist.

In 1972, I was offered an “early out” and left the Air Force. I joined NESS Satellite Applications Laboratory and worked for Vince Oliver². There I met Ted Fujita³ and Verner Suomi⁴. They were regulars who came into the office in the early 70's. It was an opportunity to grow, and I remember Dave showing sincere interest in my thunderstorm research.

In 1978, NESDIS sent me to school to finish my Ph.D. at Colorado State University. I went there in 1980 to help form CIRA, the Cooperative Institute for Research in the Atmosphere. This was under the guidance of Harold Yates, NESDIS Director of Research, and George Ludwig of NOAA's Environmental Resources Laboratories (ERL) in Boulder. Dave Johnson was the prime instigator and at the core of forming the NOAA Cooperative Institutes and provided his full support to Harold. CIRA was the second cooperative institute. It was similar to the one at the University of Wisconsin, the

¹ Arthur William Johnson “Art” (1919-2011)

² Vincent J. Oliver

³ Tetsuya Theodore “Ted” Fujita (1920-1998) was the preeminent authority on severe storms and a professor at the University of Chicago.

⁴ Verner E. Suomi is considered the “Father of Satellite Meteorology”. He, along with Dr. Robert Parent, developed the Spin Scan Radiometer and founded the Space Science and Engineering Center (SSEC) at the University of Wisconsin.

Cooperative Institute for Meteorological Satellite Studies (CIMSS), where Bill Smith⁵ went. Tom Vonder Haar, now a retired professor emeritus at Colorado State University, was very instrumental in the creation of CIRA. I was the NOAA team leader and also a federal employee. At CIRA, the five original federal employees were myself, Chief of the NESDIS Regional and Mesoscale Meteorology Branch, Robert N. Green (from NESDIS), Roger Phillips (from NESDIS), Raymond M. Zehr (from the NWS Office of Hydrology), and John F. Weaver (from NSSL).

Dave was very supportive of the use of satellite data and very excited about our type of research on severe storms and rapid scanning⁶ during severe episodes. He was instrumental in moving sounding from polar orbiting to geostationary satellites. VAS (VISSR⁷ Atmospheric Sounder) was the first geostationary atmospheric sounder. When geostationary satellite meteorology started, it was through Dave Johnson, Homer Newell⁸ of NASA, and Vern Suomi working together that allowed the spin scan cloud camera (Suomi's invention) to quickly be added to the Applications Technology Satellite-1 (ATS-1) even though ATS was late in its development cycle. This keen foresight and vision evolved into the USA geostationary meteorological satellite program; these satellites now ring the equator and are operated by different countries (USA, Europe, India, China, Japan, Korea and Russia). The United States was the leader during those early years.

Dave was an exceptional individual. He was honest, forthright, and had a strong satellite and science background. This was at a time when NOAA and NASA worked closely together through the Operational Satellite Improvement Program (OSIP). ["In this program, the first copy of a satellite or instrument was launched and assessed by NASA scientists with NOAA people there. If everything worked out and it looked good, copies were made for operational implementation to be flown on our Nation's operational meteorological satellites which were NESDIS⁹" responsibility]

The first "operational" modern era geostationary satellites began when NASA built and launched the first two SMS, Synchronous Meteorological Satellites, in May 1974 and February 1975. This was the period when SMS satellites were in the research phase. And Dave and NESDIS were right there at the beginning of this new era. The two SMS were eventually used for operational purposes and were followed by carbon copy GOES satellites.

Dave, Art Johnson, George Ludwig, Cliff Spohn, Gordon Veith, Harold Yates, Charlie Bristor and Vince Oliver were the management team at the time. These people, under Dave's leadership, had a collective vision that allowed a young NESS to thrive and grow into the world's leader in satellite meteorology and oceanography: those were very special days with very special people. In addition, at that time NOAA had possibly the strongest leader in its history, Bob White, who was a true visionary. When I went to CIRA, George Ludwig had left NESDIS to become the Director of NOAA's

⁵ Dr. William L. Smith, Jr.

⁶ Rapid interval imaging began in 1975. In 1979 project SESAME (Severe Environmental Storm and Mesoscale Experiment) synchronized two GOES satellites to produce three minute interval rapid scan imagery. See p.11 from [History of the NOAA Satellite Program](#) by Gary Davis.

⁷ VISSR – Visible and Infrared Spin Scan Radiometer

⁸ Dr. Homer E. Newell (1915-1983) was the science program coordinator for Project Vanguard and transferred to NASA in 1958 where he was responsible for planning and developing new space programs.

⁹ Quoted from [Interview with Dr. Louis Uccellini](#),

Environmental Research Laboratories (ERL) in Boulder, where he continued to be a strong supporter of CIRA.

Dave was instrumental in my life. He and Vince Oliver gave me free rein on my research and Dave was always interested in it. As I mentioned earlier, if Bill Smith was considered an optimist, I was an optimist's optimist. Dave always allowed us to pursue our visions and fostered an atmosphere of vitality, growth and enthusiasm. [Even after his retirement, Dave, Gary Davis and I would have dinner together and he was still very interested in my research in severe storms.]

D. Grimes: I heard that David Johnson was reserved.

Dr. Purdom: Scientists can be reserved. However, I would describe him as "focused" and he did amazing things. He would never lose his temper and would reason his way through things, using input from his staff. I never saw him chew anybody out. He was a true gentleman, and did not need to raise his voice. He knew what he was doing and was a very successful scientist administrator.

Dave started NESDIS and remained the Director and later the Assistant Administrator for Satellites for over 20 years¹⁰. He was in front of the development of NESDIS and built it into a national and internationally mature agency and operational satellite system. His scope and breath of expertise was amazing. He had a strong vision and an open door policy. He knew how to get along with people and I want to stress that he was very diplomatic. Dave was NESDIS, and built a foundation of the same basic functions that remain to this day.

I didn't notice his Alzheimer's disease until the 2000 era after I had retired and he, Gary Davis and I were at dinner. However, although with Alzheimer's there was still that glimmer in his eye.

I believe Dave would have taken NPOESS into another direction and not risk re-building a whole new satellite system with untested instruments. For example, VIIRS, the Visible/Infrared Imager Radiometer Suite, is just a disaster. There were at least three different agency missions driving one instrument's requirements (cloud, land and ocean imaging, low light imaging, climate and equal area field of view geometry). I believe Dave would also not have let things get structured as they were in the requirements process, i.e., he would have never let military requirements for instrument mission and performance that were not NOAA requirements effectively drive NESDIS's (NOAA's) budget. NPOESS evolved in the military way of management and not the civilian way. They let industry take the lead and there was basically no scientific watchdog. The present managers, while good at what they do, just don't have the dynamic knowledge, the deep background knowledge that Dave and his staff had in those early and formative years. I believe that with Dave and his team that they would have tried to stay the proven course; of course, during Dave's era there was an entirely different dynamic between NOAA, NASA and DoD.

It seems now that disaster after disaster is occurring in today's operational satellite program: a possible gap in continuity with the polar system; the removal of a sounder (of any type) from the geostationary program; I'm not sure there is a clear vision for the future. Sure, times are different, but I have a feeling that things would be different if Dave and his team had been there (of course when I say this, I also refer to the strong upper level support, vision and leadership of Bob White who was then

¹⁰ 1970-1982

head of NOAA). So, it was the total dynamic that embodied the time when Dave led NESDIS that made things so special. I hope the Nation is able to see something like those times again.