Tribute to Jerome Namias: The Scripps Era*

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1. Introduction

During his tenure (1941–71) at the National Weather Service, Jerome Namias pushed his attention and the meteorological community’s from extended weather fluctuations (his 5-day forecasting monograph was published in 1947) to short period climate variability (90-day forecasts were begun in 1958) (Namias 1964). E. Rasmusson’s (1998) companion paper describes Namias’s pioneering years at the Massachusetts Institute of Technology (MIT) and the National Weather Service.

In search of mechanisms that could explain systematic evolutions or inordinately persistent atmospheric circulations, Namias had identified anomalous conditions at the lower boundary (Namias 1963) to be a likely influence (Haney 1986; Anthes and Kuo 1986; Walsh 1986). Toward this notion, his later career became a three-decade (1968–89) marathon that was instrumental in developing the climate community’s recognition that climate fluctuations were tied strongly to boundary influences, including sea surface temperature, soil moisture, and snow cover. Moreover, these were key elements in the extended range forecast problem.

Namias had grown tired of government budget and organizational battles (Namias 1986), despite a rich career at the National Weather Service where he had participated in the revolution that produced both a newly found structure of the atmosphere and the advent of weather forecasting as a true physical science. Also, mentor Carl Rossby, and friend and supporter Harry Wexler had passed away, and long-time collaborator Phil Clapp was retiring. 2

At the Scripps Institution of Oceanography, he found his “second wind,” a highly productive era in which he published some 70 papers and at least 20 other documents. 3 Most of these explored various aspects of short period climate variations and their predictability (Namias 1975a, 1983a, 1992).

2. The move to Scripps

Somewhat ironically, after his three-decade career at the extended forecast division of the National Weather Service, he found his “second wind,” a highly productive era in which he published some 70 papers and at least 20 other documents. Most of these explored various aspects of short period climate variations and their predictability (Namias 1975a, 1983a, 1992).

^Interestingly, Namias’s Collected Works are nearly symmetrical in the number of papers published before he left the National Weather Service during 1934–71 (73) and the number published in his Scripps era during 1972–91 (72).

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Fig. 1. Favorite photo of J. Namias, La Jolla, 1978.

1Namias and Wexler both attended Durfee High School in Fall River, Massachusetts. Namias was first to catch the weather bug—inspired by his high school physics teacher. Wexler [Namias (1968) describes him as “more scholarly”] studied mathematics at Harvard, but Namias introduced Wexler to Rossby, who converted him to meteorological studies. Wexler went on to contribute in various areas, and became chief of research at the National Weather Service. Wexler and Namias married sisters, Hannah (Wexler) and Edith (Namias).

2Clapp and Namias shared a retirement party from the National Weather Service in 1971. Phil Clapp also passed away in 1997, within weeks of Namias’s death.

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Weather Service, Namias landed in La Jolla at Scripps instead of at an East Coast institution. After all, he had roots in the east, had essentially begun his career at MIT, had followed and forecast weather over the eastern United States and the European sector, and on more than one occasion had spent time at Woods Hole.

Namias’s preoccupation with ocean influences was sparked by the remarkable climatic anomaly of 1957–58, a massive warming in the eastern Pacific along with biological shifts (Sette and Isaacs 1960). These changes were particularly intense by California coastal waters. He was lead-off speaker on background climate conditions for this episode at a multidisciplinary conference convened by the California Cooperative Fisheries organization (CalCOFI) at Rancho Santa Fe, California.

This meeting and the 1958 event catalyzed his impression that a major generator of weather over North America was the North Pacific, with its vast upstream seat and the ability to carry as much heat in its uppermost several meters as could the entire atmosphere.

Characteristic of his intense interest in climate events, he visited the 1957–58 episode at least twice in publications (Namias 1959, 1972), first studying mechanisms producing remarkable ocean temperature features in the eastern North Pacific, and then broadening his scope to consider how the oceanic event fit into a slowly evolving atmospheric pattern across the basin. Moreover, at Scripps Namias had found an organization appreciative of his ideas (perhaps the Weather Bureau did not always share this enlightened attitude). Namias’s imaginative treatment of large-scale natural phenomena had impressed John Isaacs, who directed the Scripps Marine Life Research Group and who had co-organized the Rancho Santa Fe meeting. Isaacs later hosted Namias in a series of extended sabbatical visits to Scripps Institution of Oceanography, sweetened with a nearby beach house, ocean view, and a gardener. This pilgrimage began in 1968, and continued until 1972 when Jerome and Edith migrated full time to Scripps after formal retirement from the National Weather Service.

Climate studies were nonexistent at Scripps at that time, although noteworthy efforts had been conducted in earlier decades by long-time Scripps Professor G. McEwen (Shor 1978) and later by Scripps/UCLA graduate student W. Jacobs. Namias, however, had the advantages of more atmospheric and oceanic data, an emerging computing capability, and a clear vision of how to apply them. Namias and climate studies were supported strongly by Director William Nierenberg, who saw values in large-scale studies and applying them to societal problems. With the establishment of the NORPAX project, climate variability studies took hold and the seeds were sown for the Scripps Climate Research Group. Namias served as head of this group until 1979 when Richard Somerville came on board.

Typically, beginning with Harold Sverdrup (Scripps director, 1936–48), continued by Roger Revelle (1951–64), and later by W. Nierenberg, there was a tradition at Scripps for “big-picture thinking” regarding the ocean.

NORPAX was an outgrowth of the Scripps “North Pacific Study” led by J. Isaacs. NORPAX was a multinstitutional effort, dominated by physical oceanographers and funded by the Office of Naval Research and the National Science Foundation. The purpose was to better understand sea–air interactions primarily in the North Pacific, with ultimate aim of improving long-range weather forecasts over the ocean and around the globe (Bull. Amer. Meteor. Soc. 1974, 251–252). The NORPAX project involved both Namias, the advocate for midlatitude SST effects, and J. Bjerknes, who was instrumental in elucidating key elements of global ENSO phenomena.

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**FIG. 2.** The remarkable warming of the eastern North Pacific during 1957–58 persisted for more than three years. Scripps pier temperatures, which have been monitored daily since 1916, illustrate how this warming arose out of the relatively cool period during the early 1950s.

**FIG. 3.** The winter 1969 atmospheric circulation (isopleths of 700-mb height anomalies) and SST anomalies (light shading denotes warm; dark shading denotes cool) over the North Pacific. This case was the object of one of Namias’ early air–sea interaction case studies; he chose it as the cover of his collected work.
3. Ground-breaking studies on ocean-atmosphere interactions

At Scripps, Namias pioneered basic studies relating how the ocean surface temperature patterns developed over the entire span of the North Pacific, commensurate with long waves in the atmospheric circulation, and persisted over the course of seasons to years in advance. In SST anomalies he found an agent that might qualify as the long-sought-after influence upon long range weather fluctuations: great heat content, seasonal timescales, and a spatial dimension that could affect continental weather. Along with Scripps staff member Robert Born, Namias spent a great deal of effort in developing statistical and physical models associated with North Pacific SST, and how they related to atmospheric circulation.

Some of his important first papers at Scripps were focused on the oceanic thermal characteristics, revealing the broad space scales and strong seasonal persistence that characterized monthly SST anomalies (Namias and Born 1970; Namias 1972). At the same time, these anomaly fields were catalogued in a set of Scripps CalCOFI atlases (Namias 1975b, 1979) as well as in a digital monthly dataset that was widely distributed. Teleconnections relating atmospheric circulation...
Fig. 8. Namias studied summer continental drought over the U.S. several times throughout his career. The figures above are (a) from his early studies where the “dry tongue” was emphasized via isentropic analysis (Wexler and Namias 1938) and (b) from his 1980 study (Namias 1983) where he incorporated oceanic temperatures and a hemispheric point of view.

anomalies were both a tool and a subject of investigation—an atlas of seasonal teleconnections of 700-mb height was also produced (Namias 1981).

Of course there was an aim beyond these basic studies, and that was to connect lower boundary variability, in the form of SSTs, to the atmospheric circulation. In a noteworthy example (1976), Namias postulated that anomalies SST south of the Aleutian Islands and western Alaska provided a “negative feedback” to fall cyclones that developed in this region.

As was typical, he used a synoptician’s insight [Namias and Clapp (1944)] were impressed by strong cyclonogenesis in the Gulf of Alaska describing long waves in the westerlies], but he now employed seasonal aggregates and a 27-year dataset to decipher this behavior, reasoning that warm SST would destabilize cool air masses and increase latent and sensible heating, thus amplifying cyclones, while cool SST would have the opposite effect of stabilizing the lower boundary and minimizing cyclonic development.

4. Case studies and seasonal forecasts

On the occasion of wandering into Jerome’s office, you would find yourself on a Namias-guided travelogue through his latest weather fascination. Invariably this was conducted against a backdrop of “how” the climate system arrived at this state, and “where” he thought it was headed. The evidence would be pinned to his wall, in the form of weather maps. He had a keen memory for past weather patterns and a real appreciation for “the aesthetics of weather maps.” Furthermore, it was his conviction that *reasons* for weather events must be found, not simply descriptions or statistical links.

A favorite Namias case study (Namias 1978) invoked SST anomalies along with other “multiple causes” to elucidate effects leading to the extraordinary Northern Hemisphere circulation and weather during winter 1976–77. With this diagnosis was presented the prescription for his seasonal forecast of this case, along with a validation (this forecast had good skill).

About the same time, Namias’s work was attracting center stage attention with the NORPAX project. One particular interaction that Namias was fond of recalling was with Davis (1976, 1978), who tested and to a certain extent verified the Namias hypothesis that midlatitude SST anomalies provide a predictive measure for subsequent atmospheric circulations.

 Jerome proudly displayed a color depiction of a wave cyclone and its connection to long waves in the upper-atmospheric flow. This was a sketch by Edith Namias, an accomplished artist whom Jerome credited for recognizing the natural symmetry of weather configurations.

7 Davis’s first (1976) paper, in considering lead/lag relationships between North Pacific SST and SLP for all months pooled together, found significant connection for SLP leading SST and for contemporaneous SLP and SST but not for SST leading SLP. However, the results of Davis’s second (1978) paper were more to Namias’s liking when these data were seasonally stratified, a significant connection linking summer SST with fall SLP, and fall SST with winter SLP was detected.
Inevitably, the diagnostic exercises that Namias conducted were aimed at forecasting. Shortly after arriving at Scripps, he reestablished seasonal forecasting, tailored similarly to the one he had developed at the National Weather Service but now in the spirit of experimental forecasting. With him, most weather and climate anomalies were viewed with an eye toward the next forecast and also how consistent they were with the last one.

Notable from his work and that of Tim Barnett's was the establishment in 1980 of the first Experimental Climate Forecast Center at the Climate Research Group under the National Climate Act. As D. Gilman and H. van den Dool emphasize, Namias’s ability to assemble and maintain an extended range forecast program at the National Weather Service was remarkable. So too was his influence later during his Scripps era, which was vital in building interest in climate prediction among the global community.

One invaluable product that emerged from his work was a set of published diagnostic studies that had begun in his early days at MIT and the National Weather Service—a chronicle of many of the extraordinary climatic anomalies of the 1930s through the 1980s, with an eye toward long-range connections, physical hypotheses, and, of course, predictability.

5. A penchant for the extratropical SST influence

It may seem surprising that Namias was somewhat a skeptic in the El Niño phase of climate research. Interestingly, he was a fervent admirer and had developed a close friendship with J. Bjerknes during the period since Namias came to Scripps and in the early phases of NORPAX. But while Bjerknes had acquired a modicum of tropical ocean and atmospheric data, Namias’s charts had a data void south of 20°N. As

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8The forecasting effort at Scripps featured a two-pronged odd couple: the subjective and often bold forecast exercise of Namias, in contrast to the objectively based analogue effort of Barnett. Namias disliked analogue techniques because he felt they diminished the physical intuition provided by a human forecaster. However, the Barnett analogue technique was received positively by the Weather Service, who adopted it for their seasonal forecast procedures.


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E. Rasmusson (1998) emphasizes, Namias was a mid-latitude synoptician who was practiced in identifying and observing vigorous systems that evidently were born and developed over the extratropics. In his view, such systems might as easily provoke tropical responses as they would arise from tropical influences. Namias did participate modestly in the El Niño chapter, though, with a concise correlative study that provided statistically clear links relating the strength of the winter Aleutian Low to both the warm and the cool states ENSO (El Niño–Southern Oscillation).

In retrospect, the notion that midlatitudes of SST anomalies have a significant impact on Northern Hemisphere weather has had somewhat of a revival, with a recent modeling study by Latif and Barnett (1994) diagnostic efforts by Wallace and collaborators (1990), and a recent modeling and diagnostic study by White and Chen (1997, submitted to J. Climate).

Along the way, Namias’s attention was extended toward other topics, including even longer period climate fluctuations. He was one of the first to con-

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10Namias did not always shy from unpopular topics or untested ideas. During the last few years of his working career, he became convinced that weather patterns, via unusual surface pressure gradients or wind torques, could trigger earthquakes. He published two papers on this topic associating Southern California earthquakes (Namias 1988, 1989) and was working on further evidence.
sider interdecadal epochs. In collaboration with Robert Dickson (Lowestoft, United Kingdom) decadal climate regimes over North America were linked to winter storm tracks and climate anomalies over the North Atlantic (Dickson and Namias 1976). His paper and others later placed seasonal events in the longer period context of climate regimes. Also, with a view that often considered very broad scales, he was among the first to reveal that the North Pacific temperature has undergone multidecadal swings since the late 1940s (Namias 1978). This idea was amplified by Art Douglas (Douglas et al. 1982) in mapping the circulation and SST shifts over the North Pacific and Northern Hemisphere occurring in the 1970s.

6. Dean of climate

His participation through six decades in the forefront of the American weather/climate scene made J. Namias a unique link between the modern climate community and its forerunners. He made important historical statements in the Bulletin of the American Meteorological Society (Namias 1983b) and in a WMO interview (Namias 1988); both found in his Collected Works. An autobiography and some very interesting summary statements by his colleagues are found in the Namias Symposium held at Scripps on 22 October 1985 (J. Roads, editor).

Jerome was an inspiration to many in the climate community, particularly to a number of younger researchers. He was a wonderful communicator, with an unusual ability to engage his audience, whether in a formal address at a university lecture hall or in a one-on-one navigation across the sea of charts maintained on his office wall space. Speaking personally, I still have a vivid picture of the 1973 lecture that Namias presented in Summer Auditorium at Scripps; this was my first introduction to Jerome. Shortly after, I mustered the courage to pay him a visit. Surprisingly, he received me with much enthusiasm and proceeded to deliver a detailed exposition of North Pacific sea–air patterns and, at the same time, charmed a young graduate student toward a subject that would become his career.

Over the years, on the firing line at the weather service and through his many academic contributions, he was considered and enjoyed the stature of a sort of un-

11Namias was awarded the Sverdrup Gold Medal for his air–sea interaction work in 1981 and was elected to the National Academy of Sciences in 1983.

official dean of the climate research community.11 His work and often his words of encouragement figured prominently in the research conducted by many of us and remain a great resource of information and ideas.

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References


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