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(SLP)

SLP

SLP

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() Cheiw .

() Selato Nicholson .

ENSO () Mariotti .

() Kevin .

Cullen .

(SLP) (SST)

NAO ()

NAO () Cullen

June SLP

November June

November

SLP

SLP

SLP

SLP

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SLP () November June SLP () June January

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June January %

(Fuzzy Set Theory)

$A_{i,n}$

B_i

$\mu_{A_{i,n}}(a_n)$

If $a_1 \in A_{i,1} \ominus a_2 \in A_{i,2} \ominus \dots \ominus a_n \in A_{i,n}$, Then $b \in B_i$

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$A_{i,n}$

a_n

\ominus
 $\mu_{A_{i,n}}(a_n)$

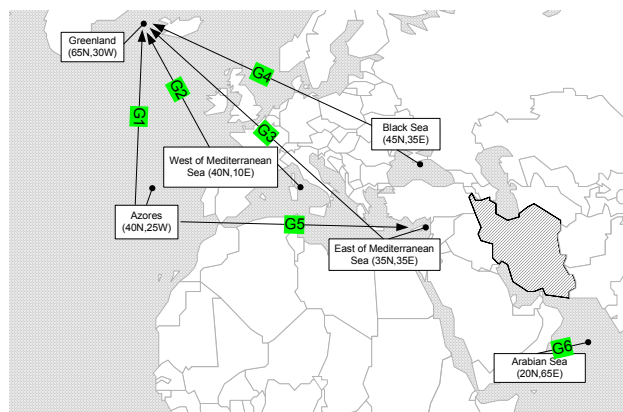


(Fuzzy Intervals)

(Degree of fulfillment)

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-
-
-
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	(G1)	(SLP)	•
(G2)		(SLP)	•
(G3)		(SLP)	•
	(G4)	(SLP)	•
	(G5)	(SLP)	•
	(G6)	(SLP)	•
	(P)		•



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	(mm)	(%)
	P>	
	<P<	
	<P<	
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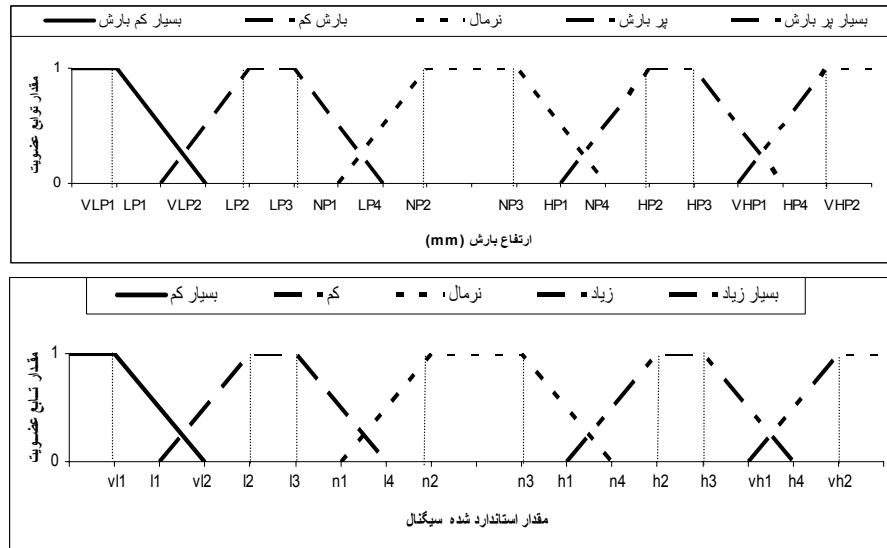
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:Z

If $G_1(t) \in G_i^f \otimes G_2(t) \in G_j^f \otimes G_3(t) \in G_k^f \otimes G_4(t) \in G_l^f \otimes G_5(t) \in G_m^f \otimes G_6(t) \in G_n^f$ ()
 Then $P(t+1) \in P_h^f$

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t i SLP SLP : $G_i(t)$
 $t+1$: $P(t+1)$
 SLP SLP k : G_k^f
 h : P_h^f



SLP : ()

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$$v_z(t) = \mu_{G_1'}[G_1(t)] \cdot \mu_{G_2'}[G_2(t)] \cdot \mu_{G_3'}[G_3(t)] \cdot \mu_{G_4'}[G_4(t)] \cdot \mu_{G_5'}[G_5(t)] \cdot \mu_{G_6'}[G_6(t)] \quad ()$$

$$t \quad \text{SLP} \quad \text{SLP} \quad \mu_{G_k'}[G_k(t)]$$

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$$\xi_z = v_z(t) \cdot \mu_{P'}[P(t+1)] \quad ()$$



$t+1$

(threshold)

$$\mu_{P_h^f}[P(t+1)]$$

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$$\hat{P}_{\max}(t+1) \quad \hat{P}_{\min}(t+1)$$

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$$\hat{P}_{\max}(t+1) = \frac{\sum_z \xi_z P_{z,\max}^f}{\sum_z \xi_z}$$

$$\hat{P}_{\min}(t+1) = \frac{\sum_z \xi_z P_{z,\min}^f}{\sum_z \xi_z} \quad ()$$

$P(t+1)$

$$\hat{P}_{\min}(t+1) \quad \hat{P}_{\max}(t+1)$$

i

t

$$P_{z,\min}^f \quad P_{z,\max}^f$$

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(ldm)

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t

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SLP

$$\mu_{G_k^f}[G_k(t)]$$

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ldm (threshold)

ldm=0.01,0.05,0.10,0.20,0.30,0.40,0.50

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lc (threshold)

lc=3,4,5,6

(0 < lc < 6)

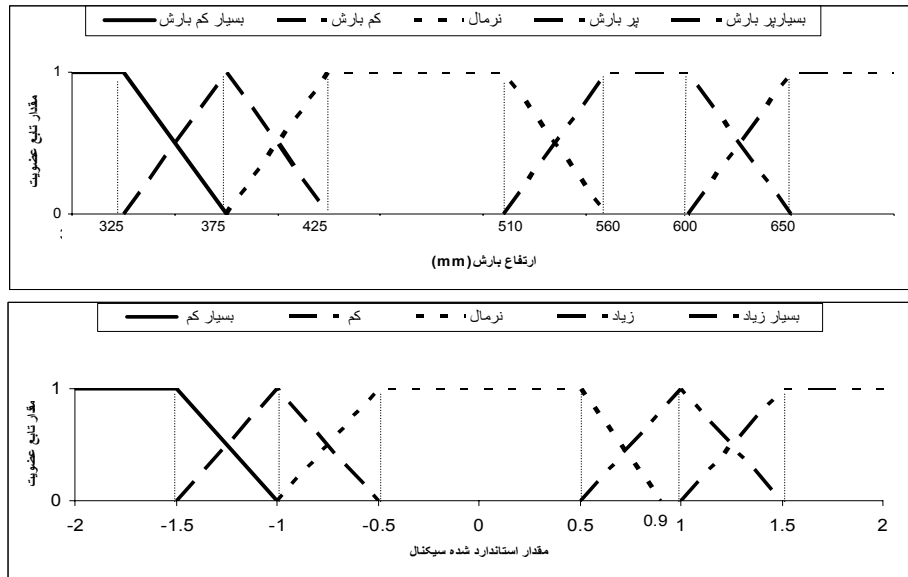
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SLP



SLP

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$l_{dm}=0.3$

$l_c=4$

() June January

()

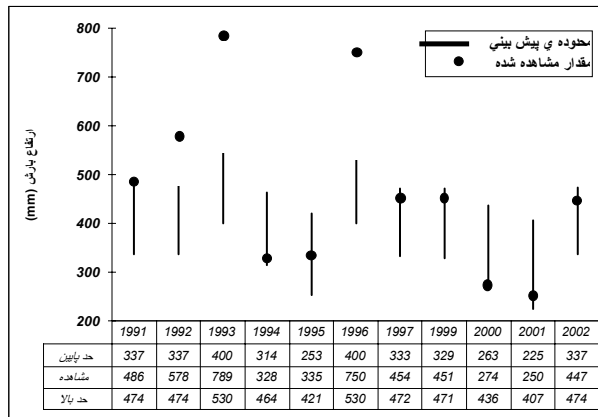
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ldm lc

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() ldm=0.30 lc=4 ()

:ldm ;

:lc



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		بارش (mm)	G1	G2	G3	G4	G5	G6
1970-2002		473	0.03	0.03	0.00	0.03	0.05	-0.05
		134	1.01	1.00	1.02	1.00	0.97	0.97
		789	1.38	1.73	1.57	1.71	1.67	2.38
		250	-2.23	-2.59	-2.44	-2.49	-2.92	-3.03
1970-1990		472	0.05	0.09	-0.03	0.01	0.15	-0.32
		111	0.98	1.05	1.12	1.09	0.89	0.97
		691	1.37	1.73	1.57	1.71	1.67	1.35
		316	-2.18	-2.59	-2.44	-2.49	-1.35	-3.03
1991-2002		475	-0.02	-0.06	0.06	0.05	-0.13	0.42
		172	1.09	0.94	0.86	0.88	1.12	0.80
		789	1.38	1.07	1.33	0.98	1.30	2.38
		250	-2.23	-1.60	-1.78	-2.08	-2.92	-0.82

(SLP) : G1•

(SLP) : G2•

(SLP) : G3•

(SLP) : G4•

(SLP) : G5•

(SLP) : G6•

Chiew F. H. S., Piechota T. C., Dracup J. A., and T. A. McMahon, "El Nino/Southern Oscillation and Australian rainfall, streamflow and drought: links and potential for forecasting", *Journal of Hydrology*, Vol. 204, (1998), pp 138-149.



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