



# Safety Assessment and Decision Support Software System of Dike



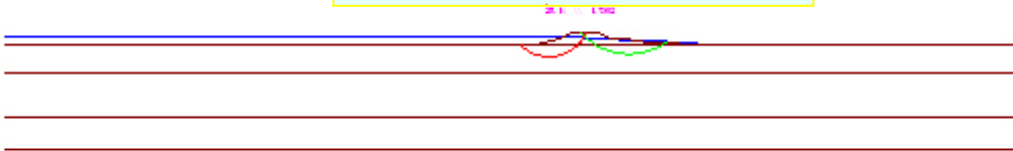
## SADSS

Safety Assessment and Decision Support Software System of Dike (SADSS) is a practical system developed with the ability of the conventional process and probabilistic risk evaluation. This software system is simple to install, uses a mouse and/or keyboard control, and has pull-down menus and interactive dialog boxes, written in visual basic together with dataset platform of SQL Server.

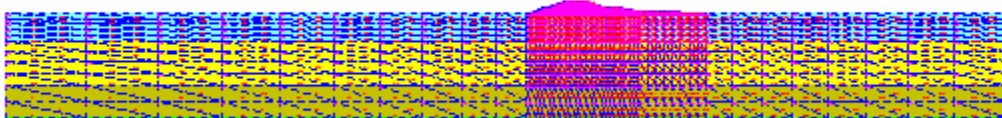
This system has three functional modules: probabilistic and risk analysis; slope sliding analysis; seepage analysis. Based on the data of typical dike subsection, the real-time computing of the risk degree can be carried out at different flood water heights. Thus the dynamic risk diagram on a whole dike ring system can be submitted. Moreover, the different safety grade can be classified according to specified standards and rules, the corresponding strengthening measures or forecasting schemes can be obtained.

It provides a user-friendly interface that facilitates easy interaction with operator in data inputting and updating and editing graphics. It can run independently or GIS-based.

### Slope sliding stability analysis



### Automatical generation mesh



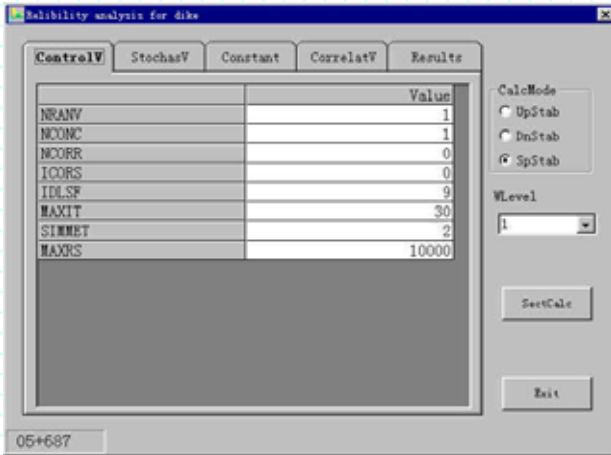
### Seepage analysis



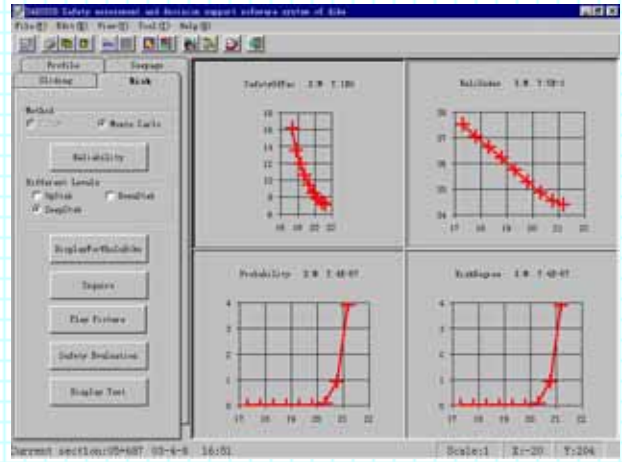
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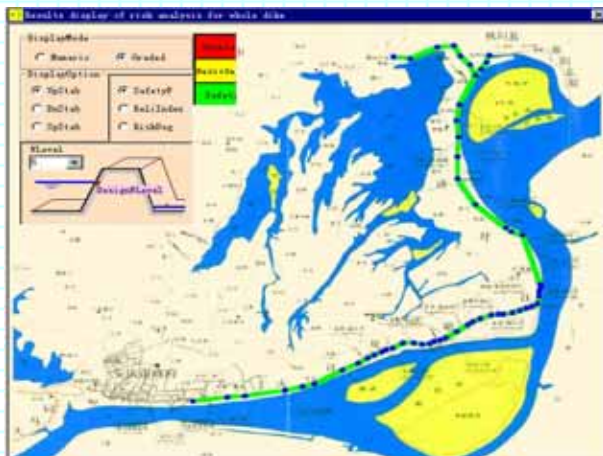
### Probability analysis with MC method



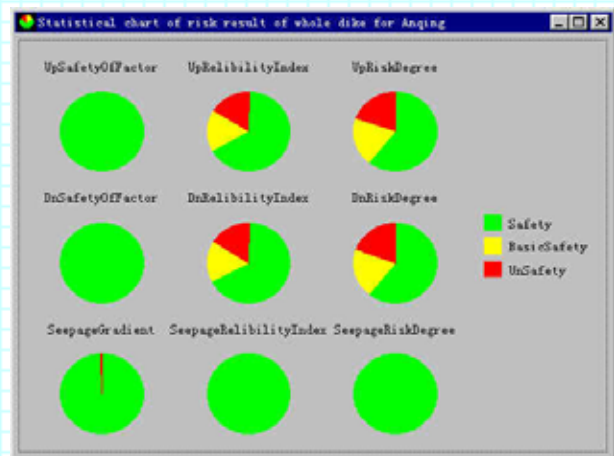
### evaluation index at various WL



### Risk distribution along the dike on GIS map



### Statistic pie chart of evaluation result



### Statistic report forms

工程风险评估简明报表

水位组别: 1

上游稳定	安全系数			可靠度指标			风险度		
	A级	B级	C级	A级	B级	C级	A级	B级	C级
堤段长度 /m	40405	0	800	29765	5970	5470	20315	8220	4670
百分比 /%	98.06	0	1.94	72.24	14.49	13.28	88.72	19.95	11.33

下游稳定	安全系数			可靠度指标			风险度		
	A级	B级	C级	A级	B级	C级	A级	B级	C级
堤段长度 /m	41255	0	0	29065	6670	5470	20865	7870	4870
百分比 /%	100	0	0	70.54	16.19	13.28	70.05	18.61	11.33

冲决稳定	安全系数			可靠度指标			风险度		
	A级	B级	C级	A级	B级	C级	A级	B级	C级
堤段长度 /m	0	0	0	0	0	0	0	0	0
百分比 /%	0	0	0	0	0	0	0	0	0

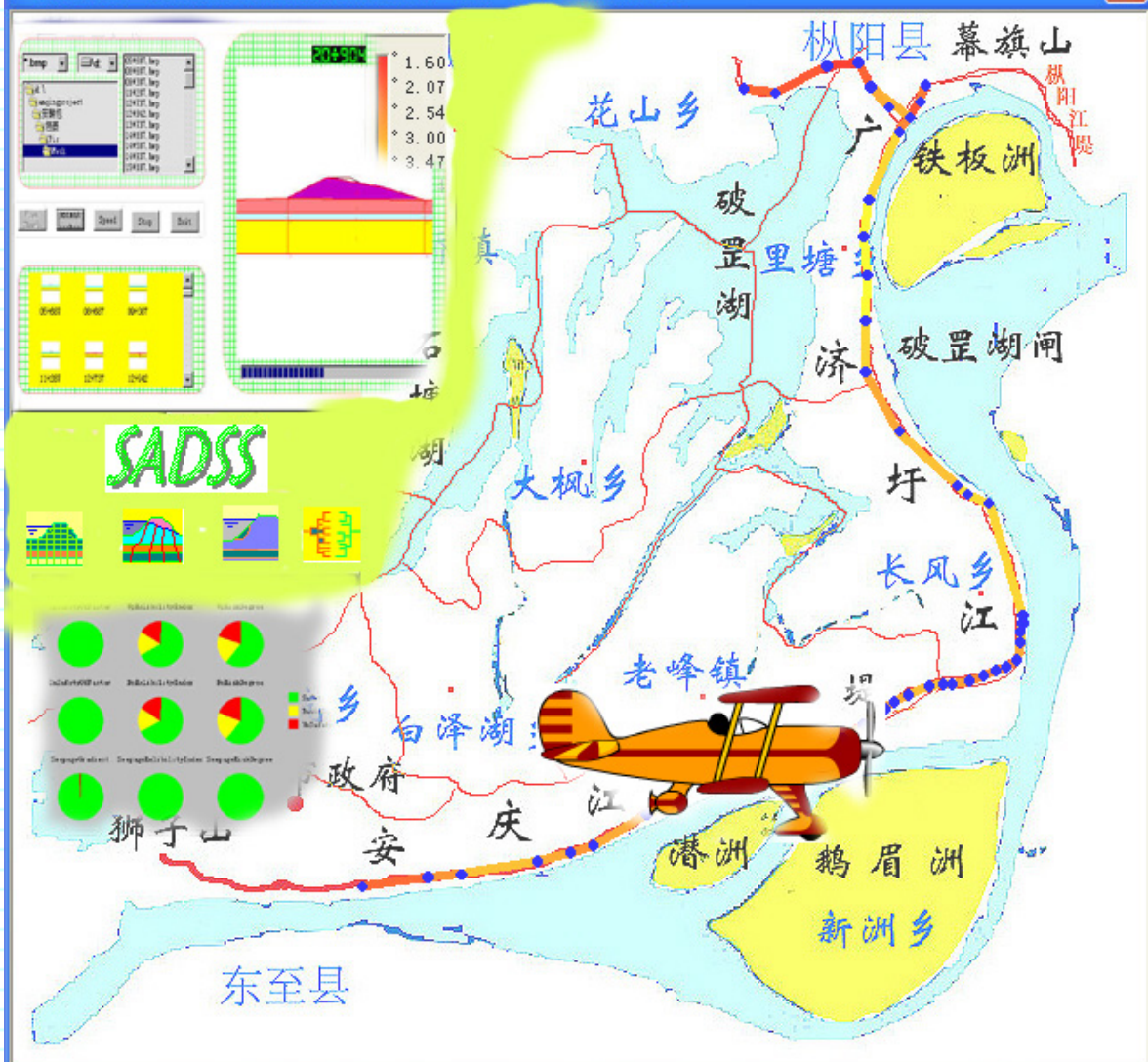
### Data inquiring

Empirement of results for whole dike

Buttons: Enginring, End, Level, Find, Print

Section	UpReliIndex	UpRisk	DnReliIndex	DnRisk	SeepageReliIndex	SeepageRisk
304207	4.5124	0.000011529	3.2308	4.5338	0.000001	1.750
314187	4.5028	0.000020794	3.2609	4.5285	0.00026	1.744
324137	4.5404	0.000020591	4.4841	4.5879	0.00022	1.742
344607	4.5932	0.000021471	4.7303	4.6162	0.00019	1.739
364187	4.5932	0.000021471	4.7303	4.6162	0.00019	1.739
374187	4.5532	0.00002599	4.2066	4.5669	0.00019	1.756
384207	4.5451	0.000027018	3.2546	4.5509	0.00025	1.756
404639	1.9519	0.05109	1.8072	1.9538	0.02498	2.029
424607	1.9519	0.05109	1.8072	1.9538	0.02498	2.029
434703	4.5766	0.000022553	3.0364	4.5909	0.00011	1.763
414544	4.6607	0.000013399	3.5622	4.7028	0.00018	1.771
404000	3.1498	0.00060521	2.5818	3.5894	0.00178	1.787
404943	2.8221	0.023506	2.6095	2.8462	0.02180	1.866
414745	1.7903	0.3617	2.1976	1.8001	0.09402	1.249
424483	2.9002	0.016883	2.4917	2.9474	0.01579	1.496
404548	3.2063	0.0066295	4.1292	3.1008	0.00951	0.779
404248	3.9659	0.00026299	3.8829	4.529	0.00026	1.151
404606	4.6967	0.0414	4.7303	4.7009	0.1421	0.2029
404606	1.7282	0.0000	1.8072	1.0572	0.0000	0.0779
404606	3.0395	0.0033	3.5849	3.5469	0.0070	1.1090
404606	0.6647	0.0100	0.7337	0.8386	0.0275	0.4572

## 安庆全堤段风险分析及安全评估成果展现



### Features:

Some mathematical models and solution procedure and specified boundary condition have been modularized and visualization. Which can process a fully automated analyses, and it almost require no programming knowledge or skill of this field.

For a typical dike subsection, sliding and seepage analysis, probabilistic and risk analysis.

For a whole dike section, a graphic displaying based on GIS map enable the user to win a maximum of information from the calculating and to publish the results very easy.

Graphics are made on the screen, and may be exported to clipboard or to either bitmap (\*.bmp). The graphics can be zoomed and the cursor position corresponding to coordinate value can be shown on the status bar.

First, second and third type boundary conditions are available for both flow and transport simulations. A 2D finite element model can simulate flow in both steady and unsteady. Solutions can be displayed as plots of flow vectors and head contours or as a complete flow net with equipotential lines and flow lines.

The Swedish and Bishop simplified method determine the stability of circular failure surfaces.

The Monte Carlo numerical simulation method has been employed to calculate the probability.

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